Pinchin LeBlanc
ENVIRONMENTAL LTD.

FINAL REPORT

TO

NOVA SCOTIA DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

ON

ENVIRONMENTAL ASSESSMENT

783 CENTRAL AVENUE, GREENWOOD, NOVA SCOTIA

SUBMITTED

BY

PINCHIN LEBLANC ENVIRONMENTAL LIMITED

PLEL PROJECT #01-5372

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EXECUTIVE SUMMARY

Pinchin LeBlanc Environmental Limited (PLEL) was retained by the Nova Scotia Department of Transportation and Public Works (DTPW) to conduct environmental site assessment work at 783 Central Avenue in Greenwood, Nova Scotia. The main purpose of the work was to gather information on the physical and chemical properties of soil and groundwater on the site. The investigation focused on potential impacts to soil and/or groundwater from chemicals generally classified as Volatile Organic Compounds (VOCs).

The site at 783 Central Ave. was once the location of a commercial building which housed several tenants including a dry cleaning operation called Sun Ray Cleaners. In 1985, the (then) Department of Environment investigated concerns related to possible VOC impacts to groundwater on and near the property. Their investigation determined that the drilled well serving the property was affected by chlorinated solvent impacts. A site cleanup was undertaken and changes were made to waste chemical disposal practices in order to prevent further impacts. Subsequent monitoring of groundwater quality showed a decline in tetrachloroethylene concentrations. The building was destroyed by fire in 1995.

It has been determined that groundwater in several nearby private (mainly residential) wells has been affected by chlorinated solvents. Specifically, tetrachloroethylene has been detected in well water at several locations to the north and northwest of the subject site. The so-called "area of interest" comprises the site itself as well as lands between the site and the Annapolis River to the north. Streets involved include Mayhew Drive, Faculty Drive, Bowlby Park Drive, Sampson Drive and Bridge Street.

Historically, solvents used in the dry cleaning industry can be divided into two main categories: petroleum and chlorinated. The first category includes benzene, naptha, "white" gasoline, and other products. Commonly-used chlorinated solvents include(d) carbon tetrachloride, 1,1,1-trichloroethane, 1,2-trichloro-1,2,2-triflouroethane, trichloroethylene (TCE) and tetrachloroethylene (otherwise known as perchloroethylene, PCE or "Perc"). Perc became the most widely-used chlorinated solvent in the industry. Tetrachloroethylene (Perc) is a Dense Non-Aqueous Phase Liquid (DNAPL) which is heavier than, but can dissolve in, groundwater.

The site is underlain by stratified glaciofluvial sands with a fines (silt and clay) content that appears to increase with depth. Bedrock was not encountered by any of the boreholes drilled for this investigation. Well records indicate that bedrock is at a depth of about 18.6 metres (61 feet). The depth to groundwater is about 4.7 metres below ground surface. Groundwater flow is probably unconfined in a northeasterly direction.

The site and surrounding area is relatively level with general drainage directions towards Zeke Brook and the Annapolis River to the north and northwest. There are no brooks, streams or bodies of standing water in the general area of the site. However, there is a slight topographic low area immediately to the north and northwest of the site. This low area would collect surface drainage from several directions including from the site itself.

A total of 4 boreholes were drilled on the site. A 37.2 metre (122') deep drilled well which once supplied water to the property was located and provided with riser pipe so that it could act as a permanent monitoring station. Five representative soil samples from the boreholes and five

groundwater samples collected from the monitor wells and the existing drilled well (5 in total) were submitted to a CAEAL-certified laboratory for analyses of VOCs.

Tetrachloroethlyene was detected in one soil sample obtained from 0.0 to 0.6 metres in MW 1. This borehole was drilled in an area where it was suspected that waste chemicals were discarded. No VOCs were detected in any of the other soil samples selected for analysis.

Tetrachloroethlyene was detected in groundwater sampled from the existing drilled well (constructed in 1969) and from two monitor wells. The sample from MW 4 was characterized by a tetrachloroethlyene concentration of 190 µg/L which is well above the CCME guideline (30 µg/L). Cis-1,2-dichloroethylene (38 µg/L) and trichloroethylene (2.5 µg/L) were also detected in the sample from MW 4. While there is no CCME guideline for cis-1,2-dichloroethylene, the trichloroethylene concentration is below the guideline of 50 µg/L. Chloroform (no CCME guideline) was detected in the groundwater sample from MW 3 and benzene was detected in the sample from MW 2 (2.3 µg/L versus the guideline of 5 µg/L).

The detection of tetrachloroethlyene in the soil sample from MW 1 supports the hypothesis that waste dry cleaning chlorinated solvents were disposed of at ground surface in that area. However, the absence of tetratchloroethylene in another, deeper soil sample from the same borehole suggests that the constituent did not migrate to any great extent vertically in the soil column in that area.

Surface runoff from the site would have been directed to a topographic low area to the north where it could then percolate to groundwater. Dissolved tetrachloroethylene in surface runoff could have followed this pathway.

The direction of groundwater flow from the site is to the northeast and there are no reports of chlorinated solvent sources south of the site. This factor, and the knowledge that the site was once the location of a dry cleaning operation, suggests that the impacts to groundwater on the site are the result of the disposal or release of chlorinated solvents at the site itself.

Based on the results of this assessment, it is not possible to conclude whether or not the tetrachloroethylene impacts to groundwater in the private wells to the north/northwest are the result of release(s) of chlorinated solvents on the site itself. Further investigation to delineate the extent of the dissolved tetrachloroethylene plume in the soil and bedrock aquifers surrounding the site is recommended.

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1.0 INTRODUCTION

Pinchin LeBlanc Environmental Limited (PLEL) was retained by the Nova Scotia Department of Transportation and Public Works (DTPW) to conduct environmental site assessment work at 783 Central Avenue in Greenwood, Nova Scotia. The main purpose of the work was to gather information on the physical and chemical properties of soil and groundwater on the site. In particular, the investigation focused on potential impacts to soil and/or groundwater from chemicals generally classified as Volatile Organic Compounds (VOCs). The program involved field inspection, borehole drilling, soil sampling, installation of groundwater monitor wells, locating a former drilled well, obtaining groundwater samples and conducting laboratory analytical work. Analytical data were compared to recognized guidelines to assess the significance of the findings. All of the investigation results were then used to assess the potential for the site to be the source of impacts to groundwater measured elsewhere in the area. This report presents all of the results of the assessment.

1.1 Report Format

Following this introduction, Section 2.0 provides background information on the site and its history. Section 3.0 describes the guideline framework used to assess the concentrations of various constituents in soils and groundwater. The environmental setting for the site is discussed in Section 4.0 and site characterization procedures are presented in Section 5.0. Soil conditions encountered in the boreholes are discussed in Section 6.0 and groundwater conditions in Section 7.0. The results of soil and groundwater analytical work are presented in Section 8.0 and Quality Assurance/Quality Control measures are discussed in Section 9.0. A discussion of the project results is included in Section 10.0.

A variety of support information is included in the appendices: Figures are provided in Appendix A. Monitor Well Logs are located in Appendix B and laboratory certificates in Appendix C. Photographs of the site and surroundings taken during the fieldwork are included in Appendix D.

2.0 BACKGROUND

The site at 783 Central Ave. (Figure 1, Appendix A) was once the location of a commercial building which housed several tenants including a dry cleaning operation called Sun Ray Cleaners. In 1985, the (then) Department of Environment investigated concerns related to possible VOC impacts to groundwater on and near the property. Their investigation determined that the drilled well serving the property was affected by chlorinated solvent impacts. A site cleanup was undertaken and changes were made to waste chemical disposal practices in order to prevent further impacts. Subsequent monitoring of groundwater quality showed a decline in tetrachloroethylene concentrations. The building was destroyed by fire in 1995.

It has been determined that groundwater in several nearby private (mainly residential) wells has been affected by chlorinated solvents. Specifically, tetrachloroethylene has been detected in well water at several locations to the north and northwest of the subject site. The so-called "area of interest" (Figure 2, Appendix A) comprises the site itself as well as lands between the site and the Annapolis River to the north. Streets involved include Mayhew Drive, Faculty Drive, Bowlby Park Drive, Sampson Drive and Bridge Street. Since chlorinated solvents (including tetrachloroethylene) are, or were, commonly used in dry cleaning, attention has focused on this site as a potential source of the effects noted.

3.0 GUIDELINE FRAMEWORK

Throughout this report, in the text and in tables, reference is made to guideline values for different volatile organic compounds in soil and groundwater. The guideline criteria selected for use in this assessment are detailed in this section.

3.1 Soil

The Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines (CSoQGs – updated December 2003) are used when assessing constituent concentrations in soil. The CSoQGs for residential land use have been applied.

3.2 Groundwater

The Guidelines for Canadian Drinking Water Quality (GCDWQ – updated December 2003) have been used to assess constituent concentrations in ground water.

4.0 ENVIRONMENTAL SETTING

4.1 Site Location and Description

The site is located at 783 Central Avenue (Route 201) in Greenwood, Nova Scotia (Figure 1). Service Nova Scotia and Municipal Relations (SNSMR) lists the PID of the property as 55120372 and the current owner as Everett and Smith Ltd. The site is located on the north side of Central Ave. about 250 metres northeast of the intersection with Bridge Street.

The site is approximately 0.4 hectares (1.1 acres) in size. A portion fronting on Central Ave. is paved with asphalt but the remainder is level soil. A stand of trees is located at the rear of the property.

The outline of the building which once occupied the site is shown on Figure 3. A drilled well was located just off the east side of the structure. Historical records supplied as part of this assessment included sketches which indicate "Still Bottom Waste Storage in Barrels" and "PCE Storage" in the same general area. There are anecdotal reports that waste chemicals were discarded on the ground surface at the treeline behind the former building (Figure 3).

4.2 Land Use

The property is not currently in use but was most recently the site of a used automobile dealership with a temporary office trailer-type building. The trailer is no longer on the site. In the past, a building on the property (Figure 3) housed several businesses including a dry cleaning operation. That building was destroyed by fire in 1995. Land use in the immediate area of the site (Central Ave.) mainly consists of commercial enterprises such as restaurants, coffee shops, accounting offices, etc. Kingston Bible College lands are located just to the west/northwest. Farther to the north/northwest, lands have been developed for residential purposes (Figure 2). The southern section of Mayhew Drive is located about 250 m to the north of the site. Private residences are also located along Bridge Street and further to the northwest on streets such as Sampson Drive. The main gate to a Canadian Forces Base (14 Wing Greenwood) is located about 500 m to the northeast of the site.

4.3 Buried Utilities

Municipal water and sewer services are available to properties on Central Avenue. However, it is understood that some sites on this street still utilize wells for their water supply. There is evidence (pipe stubs just above ground surface) that the office trailer formerly located on the subject property was serviced with municipal water and sewer.

In the past, the site used a 150 mm diameter drilled well as a water supply. The location of the well, drilled in 1969 and located during this study, is shown on Figure 3. It is reported that this well was 37.2 metres (122') deep and that bedrock was encountered at 18.6 m (61'). Approximately 20 metres (66') of casing was installed in the well. There are other reports of a sandpoint-type well located adjacent to the drilled well. It is presumed that this sandpoint predates the drilled well but, in any event, there is no remaining evidence of the installation.

The municipal water service does not presently extend to the residential area of interest to the north and northwest. Properties there utilize private wells. While information on well conditions is not complete, chlorinated solvent impacts have been noted in drilled and sandpoint wells. It is assumed that most drilled wells in the area are cased to bedrock and utilize the bedrock aquifer. Sandpoints, on the other hand, obtain groundwater from unconsolidated soils.

In terms of other utilities, there are buried telephone cable ducts in the Central Ave right-of-way but, considering their depth, these would have no influence on groundwater flow. Water and sewer line trenches beneath Central Ave. could act as a preferred pathway for groundwater flow, depending on the depth of these trenches versus groundwater levels. It does not appear that water/sewer trenches are a significant factor in this assessment.

4.4 Physiography, Topography and Site Drainage

The site lies at an elevation of about 26 metres above sea level in a flat to gently rolling valley lowland setting. The site itself is level and well-drained. The surrounding area is also relatively level with general drainage directions towards Zeke Brook and the Annapolis River to the north and northwest. There are no brooks, streams or bodies of standing water in the general area of the site. However, there is a slight topographic low area immediately to the north and northwest of the site (Figure 4). This low area would collect surface drainage from several directions including from the site itself.

Drainage along Central Avenue is controlled by asphalt surfaces and curbs.

4.5 Regional Geology

4.5.1 Surficial Geology

The Annapolis Valley is well known for its relatively thick soil deposits. The Greenwood area is underlain by glaciofluvial soils deposited during the Pleistocene glaciations. These soils consist mainly of stratified outwash plain deposits of sand, gravel, silt and clay. Alluvium is present along the alignments of present-day streams and rivers. There are also isolated pockets of kame deposits in the area. In the Annapolis Valley, glaciofluvial deposits can extend to depths of greater than 60 metres. In the Greenwood area, soil depths in the order of 18 metres can be expected.

4.5.2 Bedrock Geology

Bedrock in the area consists of Triassic rocks of the Blomidon and Wolfville Formations. These sedimentary rocks include red sandstone, siltstone, conglomerate and shale.

4.5.3 Hydrogeology

In the glaciofluvial aquifer, groundwater will generally conform to the principles of unconfined flow. Piezometric surfaces and groundwater flow directions will generally reflect trends in surface topography and groundwater discharges at Zeke Brook and the Annapolis River. Permeabilities in the glaciofluvial soils can be moderate to relatively high.

The Blomidon and Wolfville Formations include relatively high-yielding sandstone and conglomerate aquifers that can be confined by overlying siltstone and claystone beds. The bedrock aquifer can also be confined by clay soils. These conditions can result in artesian flow.

4.6 Contaminant Fate and Behaviour

This project investigated the potential presence of Volatile Organic Compounds (VOCs) in soil and groundwater. Historically, solvents used in the dry cleaning industry can be divided into two main categories: petroleum and chlorinated. The first category includes benzene, naptha, "white" gasoline, and other products. Commonly-used chlorinated solvents include(d) carbon tetrachloride, 1,1,1-trichloroethane, 1,2-trichloro-1,2,2-triflouroethane, trichloroethylene (TCE) and tetrachloroethylene (otherwise known as perchloroethylene, PCE or "Perc"). Perc became the most widely-used chlorinated solvent in the industry. In March of 2000, Perc was added to the Canadian Environmental Protection Act (CEPA 1999) list of toxic substances. Tetrachloroethylene is colourless, has an odour similar to that of ether, and is a Dense Non-Aqueous Phase Liquid (DNAPL) which is heavier than water. Chlorinated compounds will degrade naturally under certain conditions. For instance, tetrachloroethylene will degrade to products such as trichloroethylene or vinyl chloride.

If a DNAPL is released on the ground surface or at depth in the unsaturated (vadose) zone above the groundwater table, much of the product will be retained in available soil pores and will be trapped by capillary forces. Here, it will be essentially immobile and will act as a continuing source of dissolved phase contamination when water flowing through the soil matrix is in contact with the product. Because DNAPLs are hydrophobic, there may be significant interfacial tension between the product and groundwater which may prevent the DNAPL from moving through the capillary fringe into the underlying saturated zone. Some DNAPLs will volatilize into the unsaturated zone and will migrate as gas through soil pores. Some constituents will partition from the soil gas to percolating recharge waters or directly to the upper surface of the groundwater table. However, depending on the volume of DNAPL released, it can develop into a vertical column and eventually reach a height where gravity creates enough pressure to overcome capillary forces. The DNAPL will then flow into groundwater.

Unless large quantities of DNAPL are released, it would be unusual to find large pools in the subsurface. Rather, the DNAPL will be more commonly found as thin, relatively immobile lenses or droplets suspended in pore spaces. It is more common that smaller amounts of DNAPL are released. In this case, once it reaches the water table, flow conditions can be very complex and will be highly influenced by the physical and chemical characteristics of the constituents and the media. Interfacial tension will force the DNAPL to follow preferential

pathways in the soil matrix. In bedrock aquifers, flow can be even more complex given the variations in primary and secondary rock permeabilities.

As mentioned above, DNAPLs are "hydrophobic" and relatively insoluble. However, they are soluble enough to cause risks to human health and the environment. In cases where a DNAPL release is of sufficient volume to cause significant dissolved phase impacts, an important issue becomes the delineation of the dissolved constituent (e.g. Perc) plume.

5.0 SITE CHARACTERIZATION PROCEDURES

5.1 Site Inspection and Document Review

The project included a thorough field inspection by a senior geoscientist during the period July 5-7, 2005. The site, surrounding lands and the residential "area of interest" were inspected to gather general information on ground conditions, land use, topography, drainage, etc.

A variety of information pertaining to this case was supplied by Nova Scotia Environment and Labour for review. This information dates back to 1985 and includes departmental notes, correspondence, sketches, laboratory certificates, etc. All of this information was reviewed by project staff. In addition, air photos of the area taken in 1977, 1987, 1992 and 2002 were obtained from SNSMR. Topographic mapping for the area was also obtained (1:50000, 1:10000, 1:2400 and 1:2000). Reports and maps on the geology and hydrogeology of the area were also assembled and reviewed.

5.2 Boreholes and Soil Sampling

The boreholes were drilled during the period July 5-7, 2005 by Lantech Drilling Services Inc. using a truck-mounted CME 55 auger rig. Borehole MW 1 was located in an area suspected to be a site where waste chemicals were discarded on the ground surface behind the former dry cleaning operation. MW 2 was placed to investigate conditions on the western fringe of the site. MW 3 was situated to investigate conditions "up-gradient" from the former dry cleaning operations. MW 4 investigated an area that may have been the general location of a former underground tank and/or what has been referred to as a "Still Bottom Waste" storage area.

The boreholes were drilled using 200 mm hollow stem augers to depths ranging from 9.1 m (MW 4) to 18.3 m (MW 1). Soils were sampled continuously to a depth of about 4 to 5 m and at 1.5 metre intervals below that depth using split spoon samplers. In general, it was not possible to sample soils with split spoon apparatus below a depth of 8 to 12 m. This was due to severe "piping" of sand into the hollow stem augers. Auger samples were obtained at greater depths in the boreholes.

Soil samples from the boreholes were placed in clean sample bags and clean glass jars provided by the laboratory. They were stored in a secure cooler and maintained at a temperature of 4 degrees Celsius until delivery to the laboratory. Split spoons were cleaned with a mild soapy water solution between sampling intervals.

Surplus auger cuttings were placed on (and covered with) plastic sheeting at a designated area on the site for later disposal.

Borehole locations are shown on Figure 5.

5.3 Monitor Wells

A monitor well was installed in each borehole upon its completion. The wells were constructed in accordance with standard industry protocols and consisted of 50 mm outside diameter Schedule 40, flush-joint polyvinyl chloride (PVC) screen and casing. The screened portion (#20 slot size) was backfilled with a sandpack consisting of #2 silica sand. The sandpack extended above the screened portion, where a bentonite seal (or seals) was installed in the borehole annulus. The remainder of the borehole annulus was backfilled with auger cuttings or #2 silica sand. Each well was completed with a compression ("J") plug and a flush-mounted steel cover. Dedicated Waterra tubing and footvalves were left in the monitor wells for future sampling.

Monitor well locations are shown on Figure 5. Well construction details are provided on the Monitor Well Logs in Appendix B.

5.4 Groundwater Level and Survey Data

Groundwater levels in the monitor wells and the drilled well were measured using an electronic probe on July 12, 2005. Ground surface and casing elevations at each well were determined with respect to a benchmark established on a nail driven into a utility pole at the front of the site (see Figure 5). This benchmark was given an assumed elevation of 27.20 metres which is closely based on geodetic survey data for the area. Groundwater elevations were then calculated.

5.5 Groundwater Sampling

The monitor wells were purged before obtaining groundwater samples. In the monitor wells, purging consisted of removing a minimum of three (3) casing volumes using the Waterra inertial lift tubing and footvalve method. The drilled well proved too deep for using Waterra tubing. A submersible pump and new riser pipe were used to collect the sample from the existing well on site. All purge water was collected in steel drums and transported off-site to an approved disposal location (Atlantic Industrial in Debert).

All samples were stored in appropriate containers provided by the Maxxam Analytics Inc., a laboratory certified by the Canadian Association of Environmental Analytical Laboratories (CAEAL). The samples were stored in secure coolers and maintained at 4 degrees Celsius for delivery to the laboratory.

Purging and sampling work for the monitor wells was conducted on July 12, 2005. The drilled well was purged/sampled on July 18, 2005.

5.6 Headspace Screening

Headspace screening was conducted on all soil samples using a Model 1238ME Gastechtor portable soil vapour analyzer with methane elimination. The headspace readings are noted on the Monitor Well Logs in Appendix B.

5.7 Analytical Work

Five representative soil and all five groundwater samples were submitted to Maxxam Analytics Inc. in Bedford, Nova Scotia for analyses of VOCs. The groundwater samples were collected from the monitor wells and the existing drilled well (5 in total).

5.8 Drilled Well

It was known that a drilled well was once present on the property. Initial attempts to locate the well with hand-held metal detector were unsuccessful and a rubber-tired backhoe was used to excavate in the suspected well location area. This work was conducted on July 6, 2005. The excavation work led to the discovery of a copper water line that apparently had run from the main building to an outbuilding at the rear of the site (see photographs, Appendix D). The well was located and uncovered. The pump that was once connected to the well was found buried near the well. The top of the steel well casing was covered with a conventional well seal and the depth to the top of the well casing was approximately 1.5 m below ground surface. A 200 mm diameter corrugated PVC riser with a locking lid was fabricated and placed over the well casing. The joint between the riser and the steel casing was cemented with quick-set grout. The well was then backfilled using the previously-excavated soils.

6.0 SUBSURFACE CONDITIONS

Conditions encountered in the boreholes are described below and on the Monitor Well Logs in Appendix B.

6.1 Fill

A surface layer of asphalt and gravel (150mm thick) was penetrated at MW 3. Fill material was encountered beneath the asphalt at that location and at ground surface in MW 2 and 4. The fill mainly consist of grayish brown sand with gravel. The fill extended to a depth of 0.2 m in MW 2, 0.4 m in MW 3 and 0.8 m in MW 4.

6.2 Glaciofluvial Soils

Natural glaciofluvial soils were encountered at ground surface in MW 1 and beneath the fill layer at the other locations. The glaciofluvial soils consist mainly of fine to coarse sand with minor fines (silt and clay) content. The fines content of the soil increases with depth where it becomes predominantly a silt.

Standard Penetration Resistance (N) values ranged from 1 to 57. On this basis, the soils are classified as very loose to very dense, in terms of relative density. Bedrock was not encountered in any of the boreholes.

7.0 GROUNDWATER

Static groundwater levels were measured in the monitor wells and drilled well on July 12, 2005. The groundwater survey data are summarized below.

Table 1: Summary of Groundwater Survey Data

Monitor Well Number	Datum* Elevation (m)	Depth to Groundwater (m)	Groundwater Elevation (m)
MW 1	26.15	4.705	21.45
MW 2	26.35	4.686	21.66
MW 3	26.29	4.686	21.60
MW 4	26.15	4.59	21.56
Drilled Well	26.90	5.725	21.18

* Datum is top of PVC casing.

Groundwater equipotential lines were calculated based on data from MW 1 – 3, incl. and groundwater flow direction was determined. As shown on Figure 5, groundwater flow is to the northeast. The groundwater horizontal gradient is 0.006. Given the very slight differences between groundwater elevations in the monitor wells and their relatively close spacing, the direction of groundwater flow is considered approximate. Groundwater levels will fluctuate seasonally and in respon se to precipitation.

8.0 ANALYTICAL RESULTS

8.1 Soil Sample Analytical Results

The results of VOC analyses on 5 soil samples are summarized on Table 2 (next page) where they are compared to the CSoQGs for residential land use. Please note that the laboratory reports the results of VOC analyses on soil in units of µg/kg. The CSoQGs are presented by CCME in units of mg/kg. On the summary table, the CCME guideline values have been converted to µg/kg.

Tetrachloroethlyene was detected in one soil sample obtained from 0.0 to 0.6 metres in MW 1. This borehole was drilled in a suspected waste chemical disposal area. No VOCs were detected in any of the other soil samples.

TABLE 2: SUMMARY OF SOIL ANALYTICAL RESULTS

(µg/kg)

Parameter	Reporting Limit	BH1 S-1 0.0-0.6 m	BH1 S-3 1.2-1.8m	BH2 S-3 1.2-1.8 m	BH3 S-3 1.2-1.8m	BH4 S-5 2.4-3.0m	CCME Residential CSoQGs
CHLOROBENZENES							
1,2-Dichlorobenzene	30	ND	ND	ND	ND	ND	
1,3-Dichlorobenzene	30	ND	ND	ND	ND	ND	
1,4-Dichlorobenzene	30	ND	ND	ND	ND	ND	
Chlorobenzene	30	ND	ND	ND	ND	ND	
VOLATILES							
1,1,1-Trichloroethane	30	ND	ND	ND	ND	ND	
1,1,2,2-Tetrachlorethane	30	ND	ND	ND	ND	ND	
1,1,2-Trichloroethene	30	ND	ND	ND	ND	ND	3000
1,1-Dichloroethane	30	ND	ND	ND	ND	ND	
1,1-Dichloroethylene	30	ND	ND	ND	ND	ND	
1,2-Dibromoethane (EDB)	30	ND	ND	ND	ND	ND	
1,2-Dichloroethane	30	ND	ND	ND	ND	ND	
1,2-Dichloropropane	30	ND	ND	ND	ND	ND	
Benzene	30	ND	ND	ND	ND	ND	500
Bromodichloromethane	30	ND	ND	ND	ND	ND	
Bromoform	30	ND	ND	ND	ND	ND	
Bromomethane	200	ND	ND	ND	ND	ND	
Carbon Tetrachloride	30	ND	ND	ND	ND	ND	
Chloroethane	200	ND	ND	ND	ND	ND	
Chloroform	30	ND	ND	ND	ND	ND	
Chloromethane	30	ND	ND	ND	ND	ND	
cis-1,2-Dichloroethylene	30	ND	ND	ND	ND	ND	
cis-1,3-Dichloropropene	30	ND	ND	ND	ND	ND	
Dibromochloromethane	30	ND	ND	ND	ND	ND	
Dichloromethane (Methylene Chloride)	30	ND	ND	ND	ND	ND	
Ethylbenzene	30	ND	ND	ND	ND	ND	1000
o-Xylene	30	ND	ND	ND	ND	ND	1000
p+m-Xylene	30	ND	ND	ND	ND	ND	1000
Styrene	30	ND	ND	ND	ND	ND	
Tetrachloroethylene	30	160	ND	ND	ND	ND	200
Toluene	30	ND	ND	ND	ND	ND	800
trans-1,2-Dichloroethylene	30	ND	ND	ND	ND	ND	
trans-1,3-Dichloroethylene	30	ND	ND	ND	ND	ND	
Trichloroethylene	30	ND	ND	ND	ND	ND	3000
Trichlorofluoromethane (Freon 11)	30	ND	ND	ND	ND	ND	
Vinyl Chloride	30	ND	ND	ND	ND	ND	

Notes:
1.) CCME Canadian Soil Quality Guidelines (CSoQGs) for a residential site from Summary of Existing Canadian Environmental Quality Guidelines (December 2003).
2.) ND: Not detected

8.2 Groundwater Sample Analytical Results

The results of VOC analyses on groundwater samples obtained from the monitor wells and the drilled well are presented on Table 3 (next page) where they are compared to the Guidelines for Canadian Drinking Water Quality.

Tetrachloroethlyene was detected in groundwater sampled from the existing drilled well (constructed in 1969) and from two monitor wells. The sample from MW 4 was characterized by a tetrachloroethlyene concentration of 190 µg/L which is well above the CCME guideline of 30 µg/L . Cis-1,2-dichloroethylene (38 µg/L) and trichloroethylene (2.5 µg/L) were also detected in the sample from MW 4. While there is no CCME guideline for cis-1,2-dichloroethylene, the trichloroethylene concentration is below the guideline of 50 µ g/L.

Chloroform (no CCME guideline) was detected in the groundwater sample from MW 3 and benzene was detected in the sample from MW 2 (2.3 µg/L versus the CCME guideline of 5 µg/L).

TABLE 3: SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
(µg/L)

Parameter	Reporting Limit	WW	MW1	MW2	MW3	MW4	CCME GCDWQ
CHLOROBENZENES							
1,2-Dichlorobenzene	0.5	ND	ND	ND	ND	ND	200
1,3-Dichlorobenzene	1	ND	ND	ND	ND	ND	
1,4-Dichlorobenzene	1	ND	ND	ND	ND	ND	5
Chlorobenzene	1	ND	ND	ND	ND	ND	80
VOLATILES							
1,1,1-Trichloroethane	1	ND	ND	ND	ND	ND	
1,1,2,2-Tetrachlorethane	1	ND	ND	ND	ND	ND	
1,1,2-Trichloroethene	1	ND	ND	ND	ND	ND	50
1,1-Dichloroethane	2	ND	ND	ND	ND	ND	
1,1-Dichloroethylene	2	ND	ND	ND	ND	ND	14
1,2-Dichloroethane	1	ND	ND	ND	ND	ND	5 (IMAC)
1,2-Dichloropropane	1	ND	ND	ND	ND	ND	
Benzene	1	ND	ND	2.3	ND	ND	5
Bromodichloromethane	1	ND	ND	ND	ND	ND	
Bromoform	1	ND	ND	ND	ND	ND	
Bromomethane	8	ND	ND	ND	ND	ND	
Carbon Tetrachloride	1	ND	ND	ND	ND	ND	5
Chloroethane	8	ND	ND	ND	ND	ND	
Chloroform	1	ND	ND	ND	1.1	ND	
Chloromethane	8	ND	ND	ND	ND	ND	
cis-1,2-Dichloroethylene	2	ND	ND	ND	ND	38.0	
cis-1,3-Dichloropropene	2	ND	ND	ND	ND	ND	
Dibromochloromethane	1	ND	ND	ND	ND	ND	
Ethylbenzene	1	ND	ND	ND	ND	ND	2.4 (AO)
Ethylene Dibromide	1	ND	ND	ND	ND	ND	
Methylene Chloride (Dichloromethane)	3	ND	ND	ND	ND	ND	
o-Xylene	1	ND	ND	ND	ND	ND	300 (AO)
p+m-Xylene	2	ND	ND	ND	ND	ND	300 (AO)
Styrene	1	ND	ND	ND	ND	ND	
Tetrachloroethylene	10	3.0	10.0	ND	ND	190.0	30
Toluene	1	ND	ND	ND	ND	ND	24 (AO)
trans-1,2-Dichloroethylene	2	ND	ND	ND	ND	ND	14
trans-1,3-Dichloroethylene	1	ND	ND	ND	ND	ND	14
Trichloroethylene	1	ND	ND	ND	ND	2.5	50
Trichlorofluoromethane (Freon 11)	8	ND	ND	ND	ND	ND	
Vinyl Chloride	1	ND	ND	ND	ND	ND	2

Notes:
1.) CCME Guidelines for Canadian Drinking Water Quality (GCDWQ) from Summary of Existing Canadian Environmental Quality Guidelines (December 2003).
2.) Shading denotes concentration in excess of guideline
3.) ND: Not detected
4.) IMAC: Interim maximum acceptable concentration
5.) AO: Aesthetic objective
6.) WW: Sample from drilled well (constructed in 1969)

9.0 QUALITY ASSURANCE AND QUALITY CONTROL

During fieldwork, various Quality Assurance/Quality Control (QA/QC) measures were taken. These included:

- Cleaning of samplers between sampling intervals and boreholes;
- Use of clean augers between boreholes;
- Restricted use of petroleum hydrocarbon-based lubricants on tools and equipment;
- Maintaining a clean work area for sample handling/logging;
- Use of disposable gloves when handling samples;
- Discarding of gloves between sampling events;
- Use of laboratory-supplied/prepared containers for soil and groundwater samples;
- Maintaining well materials in factory-supplied packaging until placed in the borehole;
- Use of dedicated water sample tubing and foot valves for each monitor well;
- Maintaining samples in cool (4 degrees Celsius) storage in a secure location;
- Maintaining direct custody of samples until delivery to the labor atory;
- Completing chain-of-custody documentation.

Maxxam Analytics Inc., a CAEAL-certified laboratory, maintains the following QA/QC procedures:

- Chain of Custody and sample integrity inspecti on;
- Strict document control and filing;
- Using only personnel trained to prepare and analyze in accordance with Standard Operating Procedures;
- Analytical methods based on accepted procedures (e.g. MOE, USEPA, ASTM);
- Precision monitoring by performing replicate analysis;
- Calibration integrity is ensured by analyzing check standards with each run sequence;
- Matrix effects in organic analyses are assessed with surrogate fortification of each sample;
- Extensive use of reference material for routine procedure evaluation;
- Highest available purity standards;
- Predefined analytical sequences to ensure all results are traceable to calibrate QC data;
- Hard copy reports displaying all data are generated for each instrument;
- Analytical QC performance must be demonstrated prior to data authorization;
- Data are subject to three levels of review;
- Method and instrumentation performance record s maintained for all analyses;
- A fully-certified Quality Assurance Scientist evaluates QA program on an on-going basis;
- Duplication of samples for laborator y QA/QC. Soil sample S-1 (0.0-0.6m) from MW 1 was duplicated by the laboratory for QA/QC.

In terms of laboratory testing, our review of the laboratory duplicate result in comparison to the original sample shows excellent correlation. All laboratory QA/QC standards were acceptable. The soil and groundwater analytical work conducted for this project are therefore considered an accurate reflection of site conditions.

10.0 DISCUSSION

The site at 783 Central Avenue in Greenwood was once the location of a dry cleaning operation. Reports of tetrachloroethlyene impacts to groundwater at the site date back to 1985. The building was destroyed by fire in 1995 and recent land use consisted of automobile sales. Private wells to the north and northwest are presently characterized by tetrachloroethlyene concentrations in groundwater that are in excess of the Drinking Water guideline. Tetrachloroethylene (Perc) is a Dense Non-Aqueous Phase Liquid (DNAPL) which is heavier than, but can dissolve in, groundwater.

The site is underlain by stratified glaciofluvial sands with a fines (silt and clay) content that appears to increase with depth. Bedrock was not encountered by any of the boreholes drilled for this investigation. Well records indicate that bedrock is at a depth of about 18.6 metres (61 feet). The depth to groundwater is about 4.7 metres below ground surface. Groundwater flow is probably unconfined in a northeasterly direction.

There was no visual or olfactory evidence of VOC impacts to soil or groundwater during the fieldwork. Select soil samples were analyzed for a suite of Volatile Organic Compounds (VOCs) by a CAEAL-certified laboratory. Tetrachloroethlyene was detected in one soil sample obtained from 0.0 to 0.6 metres in MW 1. This borehole was drilled in an area where it was suspected that waste chemicals were discarded on the ground surface. No VOCs were detected in any of the other soil samples.

Tetrachloroethlyene was detected in groundwater sampled from the existing drilled well (constructed in 1969) and from two monitor wells. The sample from MW 4 was characterized by a tetrachloroethlyene concentration of 190 µg/L which is well above the CCME guideline (30 µg/L). Cis-1,2-dichloroethylene (38 µg/L) and trichloroethylene (2.5 µg/L) were also detected in the sample from MW 4. While there is no CCME guideline for cis-1,2-dichloroethylene, the trichloroethylene concentration is below the guideline of 50 µg/L. Chloroform (no CCME guideline) was detected in the groundwater sample from MW 3 and benzene was detected in the sample from MW 2 (2.3 µg/L versus the guideline of 5 µ g/L).

The detection of tetrachloroethlyene in the soil sample from MW 1 supports the hypothesis that waste dry cleaning chlorinated solvents were disposed of at ground surface in that area. However, the absence of tetratchloroethylene in another, deeper soil sample from the same borehole suggests that the constituent did not migrate to any great extent vertically in the soil column in that area.

Surface runoff from the site would have been directed to a topographic low area to the north where it could then percolate to groundwater. Dissolved tetrachloroethylene in surface runoff could have followed this pathway.

The direction of groundwater flow from the site is to the northeast and there are no reported sources of chlorinated solvents "up-gradient" of the site. This factor, and the knowledge that the property was once the location of a dry cleaning operation, suggests that the impacts to groundwater on the site are the result of the disposal or release of chlorinated solvents at the site itself.

Based on the results of this assessment, it is not possible to conclude whether or not the tetrachloroethylene impacts to groundwater in the private wells to the north/northwest are the result of release(s) of chlorinated solvents on the site itself. Further investigation to delineate

the extent of the dissolved tetrachloroethylene plume in the soil and bedrock aquifers surrounding the site is recommended.

This report was prepared by Pinchin LeBlanc Environmental Limited for the sole and exclusive benefit of our client, the Nova Scotia Department of Transportation and Public Works as well as Nova Scotia Environment and Labour. It was prepared for the purposes, project and site location outlined in the report. The report is based on information provided to, or obtained by, Pinchin LeBlanc Environmental Limited (as indicated in this report) and applies solely to site conditions existing at the time of the investigation. This environmental site assessment was performed in general accordance with currently-accepted practices for projects of this kind, specific client requests, agreed scope of work, schedule, and budget.

This investigation was not exhaustive and cannot be construed as a certification of the absence of any contaminants from the site. As stated by the American Society for Testing and Materials (ASTM) and the Canadian Standards Association (CSA), no environmental site assessment can wholly eliminate uncertainty regarding the potential for environmental liabilities associated with a property. Conclusions derived are specific and limited to the immediate area of investigation. The area of extrapolation is dependent on site-specific conditions. The absence of information relating to a specific substance does not indicate that it is not present.

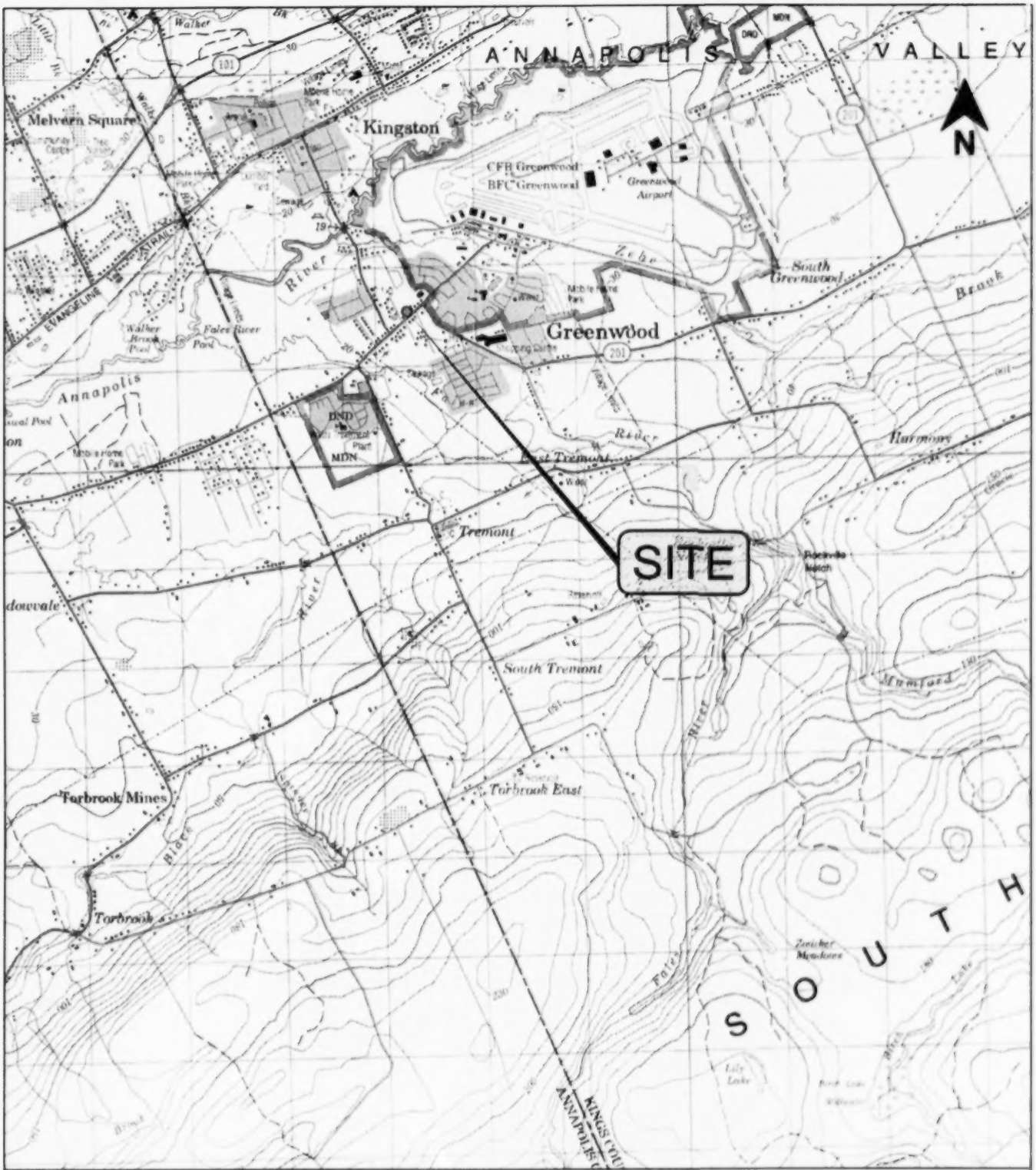
Conclusions and recommendations made in this report do not constitute a legal opinion. Any third party use of this report, or any reliance on or decisions made based on, the findings described in this report are the sole responsibility of such third parties. Pinchin LeBlanc Environmental Limited accepts no responsibility for damages suffered by any third party as a result of decisions made, or actions conducted based on, this report. No other warranties are implied or expressed.

This report was prepared by the undersigned with assistance from Mr. Craig Dickson, EIT and other PLEL staff. We trust that this report meets your requirements at this time. If there are any questions, do not hesitate to contact our office.

Prepared by:

Richard Cottingham, P.Geo.
Senior Geoscientist

APPENDIX A
FIGURES



Pinchin LeBlanc
ENVIRONMENTAL LTD.

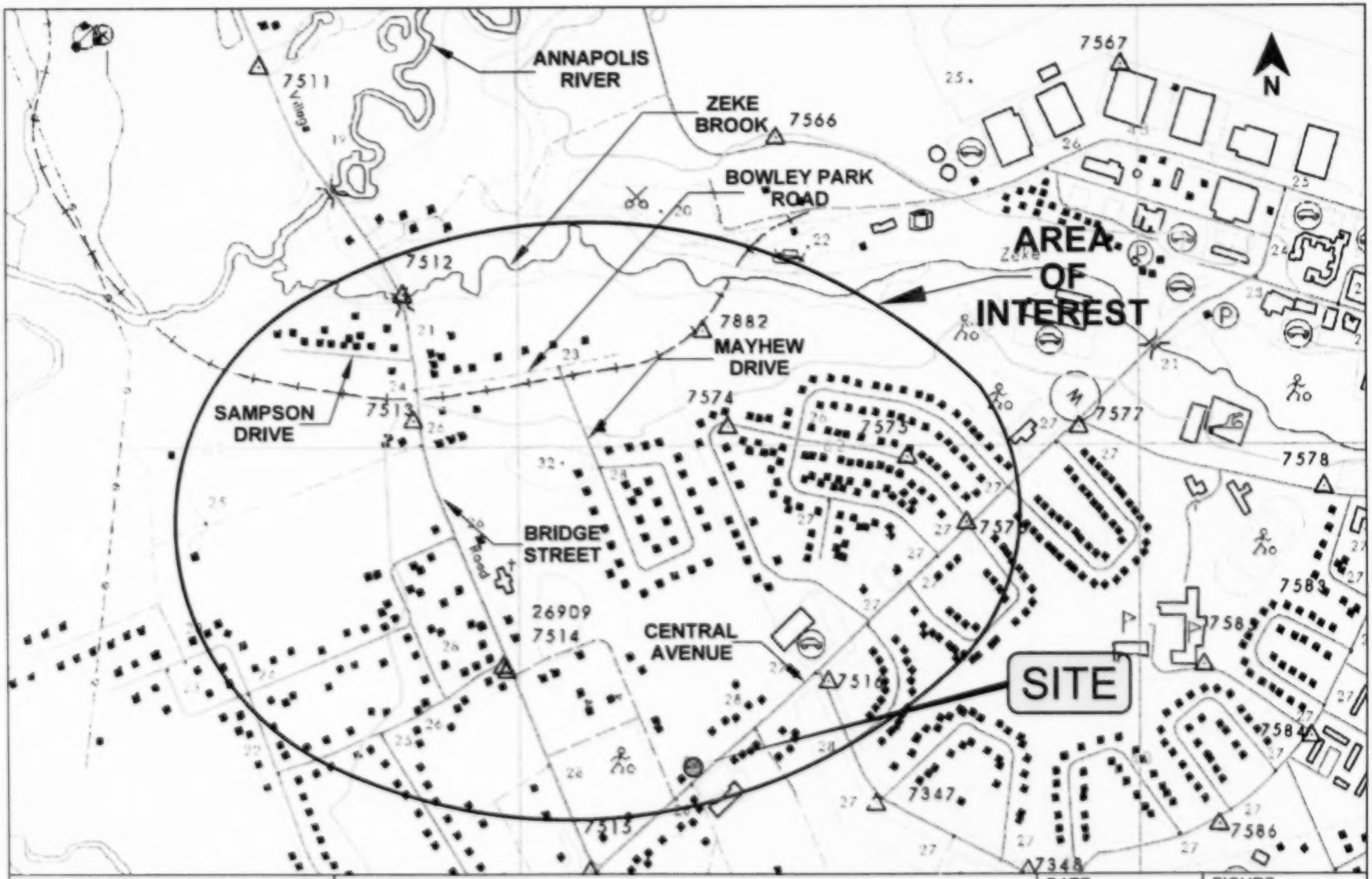
NOVA SCOTIA DEPARTMENT OF TRANSPORTATION & PUBLIC WORKS

ENVIRONMENTAL SITE ASSESSMENT

783 CENTRAL AVENUE, GREENWOOD, NOVA SCOTIA

SITE MAP

DATE:	PROJECT #	SCALE:	DRAWN BY:	CHECKED BY:	FIGURE NO.
JULY 2005	01 - 5372	1 : 50,000	D. CHAISSON	C. DICKSON	1



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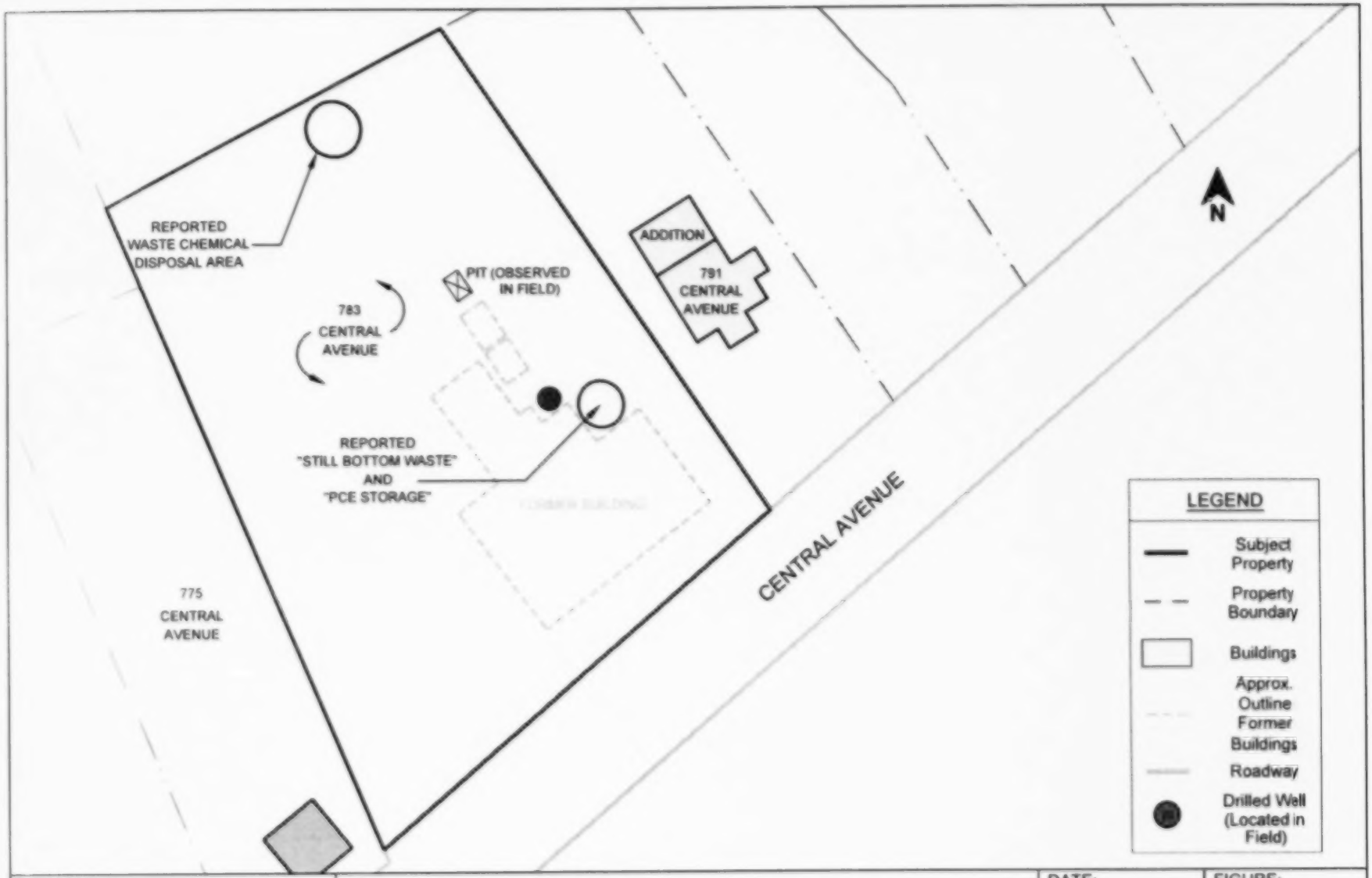
NOVA SCOTIA DEPARTMENT OF TRANSPORTATION & PUBLIC WORKS

ENVIRONMENTAL SITE ASSESSMENT

783 CENTRAL AVENUE, GREENWOOD, NOVA SCOTIA

AREA OF INTEREST

DATE: JULY 2005	FIGURE: 2
PROJECT NO: 01 - 5372	SCALE: N. T. S.
DRAWN BY: D. CHAISSON	CHECKED BY: C. DICKSON
SOURCE: 1 : 10,000 MAP SHEET 1044 9500 64 900	



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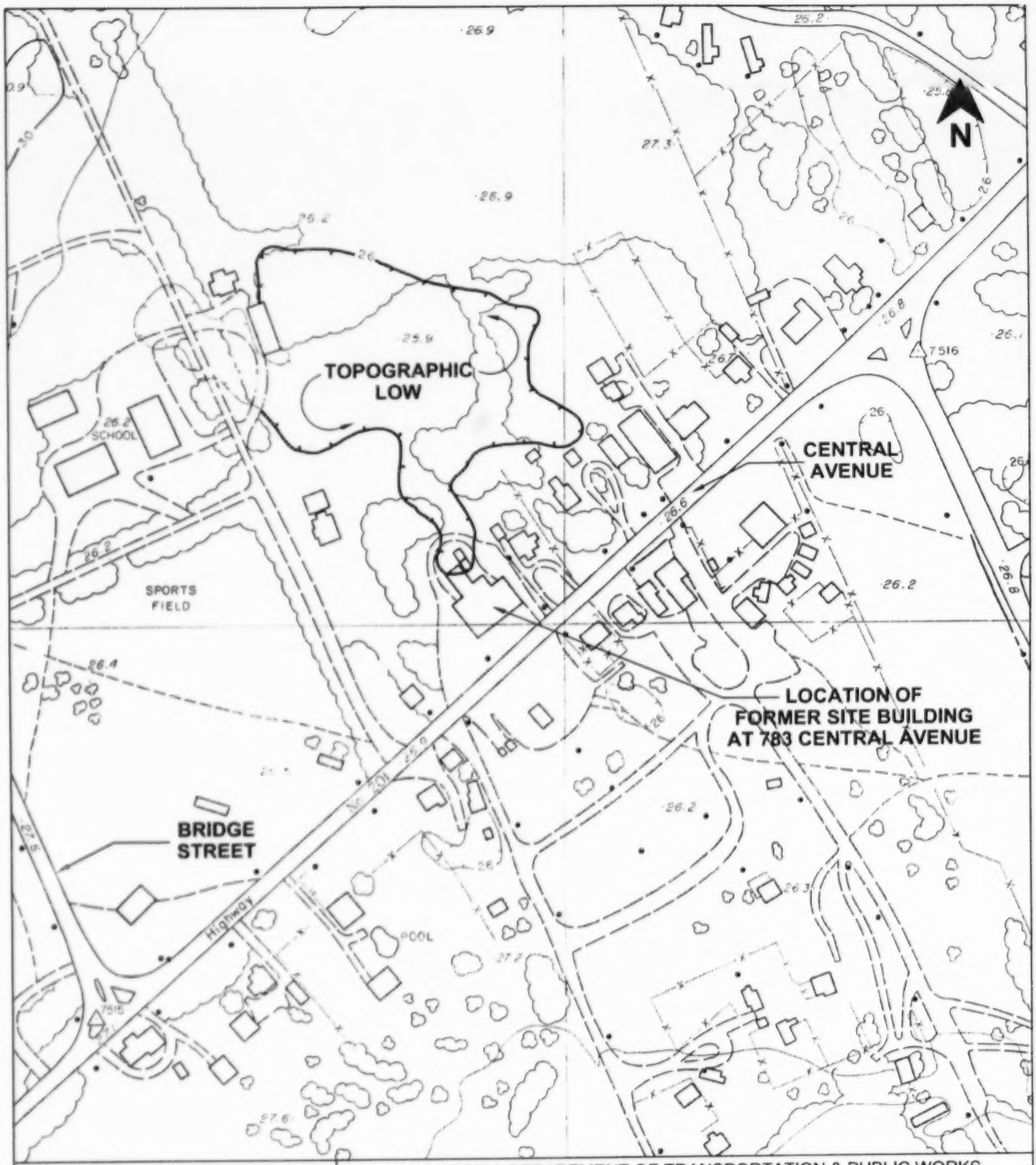
NOVA SCOTIA DEPARTMENT OF TRANSPORTATION & PUBLIC WORKS

ENVIRONMENTAL SITE ASSESSMENT

783 CENTRAL AVENUE, GREENWOOD, NOVA SCOTIA

SITE PLAN

DATE: JULY 2005	FIGURE: 3
PROJECT NO: 01 - 5372	SCALE: N. T. S.
DRAWN BY: D. CHAISSON	CHECKED BY: C. DICKSON
SOURCE: NOVA SCOTIA PROPERTY RECORDS	



Pinchin LeBlanc ENVIRONMENTAL LTD.

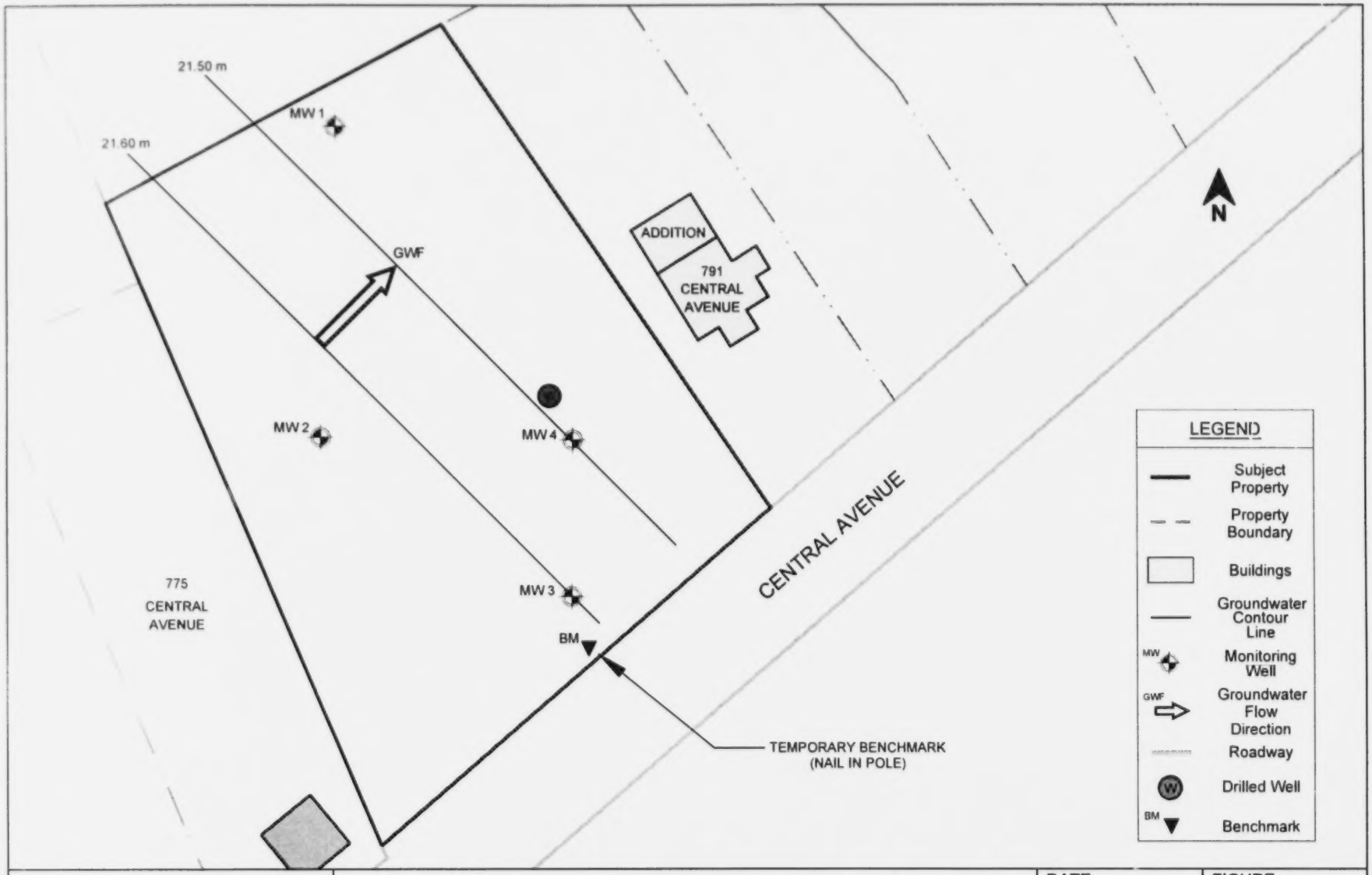
NOVA SCOTIA DEPARTMENT OF TRANSPORTATION & PUBLIC WORKS

ENVIRONMENTAL SITE ASSESSMENT

783 CENTRAL AVENUE, GREENWOOD, NOVA SCOTIA

TOPOGRAPHIC DETAILS

DATE:	PROJECT #	SCALE:	DRAWN BY:	CHECKED BY:	FIGURE NO.
JULY 2005	01 - 5372	1 : 2400	D. CHAISSON	C. DICKSON	4



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NOVA SCOTIA DEPARTMENT OF TRANSPORTATION & PUBLIC WORKS

ENVIRONMENTAL SITE ASSESSMENT

783 CENTRAL AVENUE, GREENWOOD, NOVA SCOTIA

BOREHOLE / MONITOR WELL LOCATIONS & GROUNDWATER FLOW DETAILS

DATE: JULY 2005	FIGURE: 5
PROJECT NO: 01 - 5372	SCALE: N. T. S.
DRAWN BY: D. CHAISSON	CHECKED BY: C. DICKSON
SOURCE: NOVA SCOTIA PROPERTY RECORDS	

APPENDIX B
MONITOR WELL LOGS

Pinchin LeBlanc ENVIRONMENTAL LTD.

MONITOR WELL LOG

CLIENT NS DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
PROJECT No. 01-5372
LOCATION 783 CENTRAL AVENUE, GREENWOOD, NS
BOREHOLE No. MW 1
DRILLING DATE(dd/mm/yy) 07/07/05
WATER LEVEL DATE(dd/mm/yy) 12/07/05
DATUM ASSUMED

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY mm	SAMPLES N-VALUE OR RQD	SAMPLES PID ppm	SAMPLES SAMPLE ODOUR	WELL CONSTRUCTION	CHEMICAL ANALYSES (ppb) PERC	TCE	DCE	Chloroform	Benzene
	26.3															
0		**SAND:** Very loose to compact, reddish brown to dark brown sand; dry becoming wet at 3.9 metres.			SS	1	610	3	340	0		160	ND	ND SOIL	ND	ND
					SS	2	508	12	180	0						
					SS	3	559	22	180	0		ND	ND	ND SOIL	ND	ND
2					SS	4	610	26	110	0						
					SS	5	584	17	180	0						
					SS	6	178	14	ND	0						
4					SS	7	610	18	340	0						
				▼								10	ND	ND WATER	ND	ND
6	20.2															
		SAND: Loose, reddish brown silty sand; very wet.			SS	8	457	7	180	0						
	18.7															
8		**SAND:** Very dense, reddish brown sand; very wet.			SS	9	610	57	225	0						
10																
12					AU	10			400	0						
	12.6															
14		**SAND:** Reddish brown silty sand; wet.														
					AU	11			225	0						
16	9.5															
		SILT: Reddish brown sandy silt with clay; wet.														
18	8.0				AU	12			560	0						
		End of Borehole @ 18.3 m														

MONITOR WELL RECORD WITH PERC DOTPWL-1.GPJ PINCHIN LEBLANC.GDT 28/7/05

Pinchin LeBlanc ENVIRONMENTAL LTD

MONITOR WELL LOG

CLIENT NS DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS — PROJECT No. 01-5372

LOCATION 783 CENTRAL AVENUE, GREENWOOD, NS — BOREHOLE No. MW 2

DRILLING DATE(dd/mm/yy) 06/07/05 — WATER LEVEL DATE(dd/mm/yy) 12/07/05 — DATUM ASSUMED

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES N-VALUE OR RQD	SAMPLES PID	SAMPLES SAMPLE ODOUR	WELL CONSTRUCTION	CHEMICAL ANALYSES (ppb) PERC	TCE	DCE	Chloroform	Benzene
	26.6						mm		ppm							
0	26.4	**FILL:** Compact, greyish brown sand with gravel; dry.			SS	1	533	10	225	0						
					SS	2	406	17	180	0						
		SAND: Very loose to compact, fine to coarse grained reddish brown silty sand; moist becoming wet at 4.7 m.			SS	3	483	16	110	0		ND	ND	ND SOIL	ND	ND
2					SS	4	533	25	110	0						
					SS	5	584	17	110	0						
					SS	6	584	9	110	0						
4					SS	7	610	11	110	0						
				▼	SS	8	508	7	110	0		ND	ND	ND WATER	ND	2.3
6					SS	9	152	1	110	0						
8					SS	10	610	3	110	0						
					SS	11	610	6	110	0						
10					SS	12	610	6	110	0						
12					AU	13			110	0						
	12.8															
14		**SAND:** Reddish brown silty sand; wet.														
					AU	14			110	0						
16	9.8															
	8.9	**SILT:** Reddish brown sandy silt with clay; wet.			AU	15			110	0						
18		End of Borehole @ 17.7 m														

MONITOR WELL RECORD WITH PERC DOTPW-1.GPJ PINCHIN LEBLANC.GDT 28/7/05

Pinchin LeBlanc ENVIRONMENTAL LTD

MONITOR WELL LOG

CLIENT NS DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS — PROJECT No. 01-5372

LOCATION 783 CENTRAL AVENUE, GREENWOOD, NS — BOREHOLE No. MW 3

DRILLING DATE(dd/mm/yy) 05/07/05 — WATER LEVEL DATE(dd/mm/yy) 12/07/05 — DATUM ASSUMED

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES: TYPE	NUMBER	RECOVERY (mm)	N-VALUE OR RQD	PID (ppm)	SAMPLE ODOUR	WELL CONSTRUCTION	CHEMICAL ANALYSES (ppb): PERC	TCE	DCE	Chloroform	Benzene
0	26.5															
	26.2	**ASPHALT AND GRAVEL**														
	26.1	**FILL:** Dark brown sand with gravel; dry.			SS	1	483	7	110	0						
					SS	2	483	23	110	0						
		SAND: Loose to dense, reddish brown fine to coarse grained sand with silt some silt; moist becoming wet at 4.5 m.			SS	3	508	18	225	0		ND	ND	ND SOIL	ND	ND
2					SS	4	457	15	225	0						
					SS	5	559	6	225	0						
					SS	6	610	9	180	0						
4					SS	7	457	6	180	0						
				▼	SS	8	457	8	225	0		ND	ND	ND WATER	1.1	ND
					SS	9	610	8	225	0						
6																
					SS	10	610	6	110	0						
8																
					SS	11	610	4	110	0						
10																
					SS	12	610	9	110	0						
12	14.3															
		SILT: Reddish brown silty sand; wet.			SS	13	610	33	110	0						
14																
16																
					AU	14			180	0						
18	8.2															
		End of Borehole @ 18.3 m														

MONITOR WELL RECORD WITH PERC DOTPW--1.GPJ PINCHIN LEBLANC.GDT 28/7/05

Pinchin LeBlanc ENVIRONMENTAL LTD

MONITOR WELL LOG

CLIENT NS DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS — PROJECT No. 01-5372

LOCATION 783 CENTRAL AVENUE, GREENWOOD, NS — BOREHOLE No. MW 4

DRILLING DATE(dd/mm/yy) 06/07/05 — WATER LEVEL DATE(dd/mm/yy) 12/07/05 — DATUM ASSUMED

DEPTH (m)	ELEVATION (m)	SOIL DESCRIPTION	STRATA PLOT	WATER LEVEL	SAMPLES: TYPE	NUMBER	RECOVERY	N-VALUE OR RQD	PID	SAMPLE ODOUR	WELL CONSTRUCTION	CHEMICAL ANALYSES (ppb): PERC	TCE	DCE	Chloroform	Benzene
	26.3						mm		ppm							
0		**FILL:** Compact, greyish brown sand with gravel; dry.			SS	1	0	6	NA	NA						
	25.6	**SAND:** Loose to compact, fine to coarse grained , light brown to reddish brown sand; moist becoming wet at 4.5 m.			SS	2	584	8	110	0						
					SS	3	508	12	110	0						
2					SS	4	483	13	110	0						
					SS	5	584	16	110	0		ND	ND	ND SOIL	ND	ND
					SS	6	610	19	110	0						
4					SS	7	483	18	110	0						
				▼	SS	8	584	19	110	0		190	2.5	38 WATER	ND	ND
6	20.2	**SAND:** Reddish brown sand with traces of gravel; wet.			SS	9	610	11	45	0						
					SS	10	610	10	45	0						
8	17.2	End of Borehole @ 9.1 m														
10																
12																
14																
16																
18																

MONITOR WELL RECORD WITH PERC DOTPW--1.GPJ PINCHIN LEBLANC.GDT 28/7/05

APPENDIX C
ANALYTICAL CERTIFICATES

Pinchin Leblanc Environmental
40 John Savage Ave
Dartmouth, NS
B3B 2E6

Attention: CRAIG DICKSON

Report Date: 2005/07/18

Your P.O. #: 01-5372
Your Project #: 01-5372
Site: GREENWOOD
Your C.O.C. #: 310017

ANALYTICAL REPORT

MAXXAM JOB #: A565111
Received: 2005/07/12, 15:28

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Volatile Organic Compounds in Water (1)	4	2005/07/14	2005/07/14	9615_1_3	Based on EPA624

(1) This test was performed by Bedford

MAXXAM ANALYTICS INC.

KERI MACKAY
Project Manager

KMA/lad
encl.

Total cover pages: 1

Maxxam Job #: A565111
Report Date: 2005/07/18

Pinchin Leblanc Environmental
Client Project #: 01-5372
Project name: GREENWOOD
Your P.O. #: 01-5372
Sampler Initials:

ATLANTIC VOC IN WATER PKG. (WATER)

Maxxam ID		H12585	H12586	H12587		H12588		
Sampling Date		2005/07/12	2005/07/12	2005/07/12		2005/07/12		
COC Number		310017	310017	310017		310017		
	Units	**MW1**	**MW2**	**MW3**	**DL**	**MW4**	**DL**	**QC Batch**
CHLOROBENZENES								
1,2-Dichlorobenzene	ug/L	ND	ND	ND	0.5	ND	0.5	779514
1,3-Dichlorobenzene	ug/L	ND	ND	ND	1	ND	1	779514
1,4-Dichlorobenzene	ug/L	ND	ND	ND	1	ND	1	779514
Chlorobenzene	ug/L	ND	ND	ND	1	ND	1	779514
VOLATILES								
1,1,1-Trichloroethane	ug/L	ND	ND	ND	1	ND	1	779514
1,1,2,2-Tetrachloroethane	ug/L	ND	ND	ND	1	ND	1	779514
1,1,2-Trichloroethane	ug/L	ND	ND	ND	1	ND	1	779514
1,1-Dichloroethane	ug/L	ND	ND	ND	2	ND	2	779514
1,1-Dichloroethylene	ug/L	ND	ND	ND	2	ND	2	779514
1,2-Dichloroethane	ug/L	ND	ND	ND	1	ND	1	779514
1,2-Dichloropropane	ug/L	ND	ND	ND	1	ND	1	779514
Benzene	ug/L	ND	2.3	ND	1	ND	1	779514
Bromodichloromethane	ug/L	ND	ND	ND	1	ND	1	779514
Bromoform	ug/L	ND	ND	ND	1	ND	1	779514
Bromomethane	ug/L	ND	ND	ND	8	ND	8	779514
Carbon Tetrachloride	ug/L	ND	ND	ND	1	ND	1	779514
Chloroethane	ug/L	ND	ND	ND	8	ND	8	779514
Chloroform	ug/L	ND	ND	1.1	1	ND	1	779514
Chloromethane	ug/L	ND	ND	ND	8	ND	8	779514
cis-1,2-Dichloroethylene	ug/L	ND	ND	ND	2	38	2	779514
cis-1,3-Dichloropropene	ug/L	ND	ND	ND	2	ND	2	779514
Dibromochloromethane	ug/L	ND	ND	ND	1	ND	1	779514
Ethylbenzene	ug/L	ND	ND	ND	1	ND	1	779514
Ethylene Bromide	ug/L	ND	ND	ND	1	ND	1	779514
Methylene Chloride(Dichloromethane)	ug/L	ND	ND	ND	3	ND	3	779514
o-Xylene	ug/L	ND	ND	ND	1	ND	1	779514
p+m-Xylene	ug/L	ND	ND	ND	2	ND	2	779514
Styrene	ug/L	ND	ND	ND	1	ND	1	779514
Tetrachloroethylene	ug/L	10	ND	ND	1	190	10	779514
Toluene	ug/L	ND	ND	ND	1	ND	1	779514
trans-1,2-Dichloroethylene	ug/L	ND	ND	ND	2	ND	2	779514

ND = Not detected
QC Batch = Quality Control Batch
Please check for attached comments

Maxxam Job #: A565111
Report Date: 2005/07/18

Pinchin Leblanc Environmental
Client Project #: 01-5372
Project name: GREENWOOD
Your P.O. #: 01-5372
Sampler Initials:

ATLANTIC VOC IN WATER PKG. (WATER)

Maxxam ID		H12585	H12586	H12587		H12588		
Sampling Date		2005/07/12	2005/07/12	2005/07/12		2005/07/12		
COC Number		310017	310017	310017		310017		
	Units	**MW1**	**MW2**	**MW3**	**DL**	**MW4**	**DL**	**QC Batch**
trans-1,3-Dichloropropene	ug/L	ND	ND	ND	1	ND	1	779514
Trichloroethylene	ug/L	ND	ND	ND	1	2.5	1	779514
Trichlorofluoromethane (FREON 11)	ug/L	ND	ND	ND	8	ND	8	779514
Vinyl Chloride	ug/L	ND	ND	ND	1	ND	1	779514
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	77	81	79		80		779514
D4-1,2-Dichloroethane	%	101	102	99		100		779514
D8-Toluene	%	97	97	97		99		779514

ND = Not detected
QC Batch = Quality Control Batch
Please check for attached comments

Maxxam Job #: A565111
Report Date: 2005/07/18

Pinchin Leblanc Environmental
Client Project #: 01-5372
Project name: GREENWOOD
Your P.O. #: 01-5372
Sampler Initials:

GENERAL COMMENTS

Results relate only to the items tested.

Pinchin Leblanc Environmental
Attention: CRAIG DICKSON
Client Project #: 01-5372
P.O. #: 01-5372
Project name: GREENWOOD

Quality Assurance Report

Maxxam Job Number: DA565111

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
779514 RMC	MATRIX SPIKE	1,2-Dichlorobenzene	2005/07/14		84	%	70 - 130
		1,3-Dichlorobenzene	2005/07/14		84	%	70 - 130
		1,4-Dichlorobenzene	2005/07/14		79	%	70 - 130
		Chlorobenzene	2005/07/14		105	%	70 - 130
		1,1,1-Trichloroethane	2005/07/14		100	%	70 - 130
		1,1,2,2-Tetrachloroethane	2005/07/14		100	%	70 - 130
		1,1,2-Trichloroethane	2005/07/14		105	%	70 - 130
		1,1-Dichloroethane	2005/07/14		100	%	70 - 130
		1,1-Dichloroethylene	2005/07/14		100	%	70 - 130
		1,2-Dichloroethane	2005/07/14		100	%	70 - 130
		1,2-Dichloropropane	2005/07/14		105	%	70 - 130
		4-Bromofluorobenzene	2005/07/14		98	%	70 - 130
		Benzene	2005/07/14		100	%	70 - 130
		Bromodichloromethane	2005/07/14		89	%	70 - 130
		Bromoform	2005/07/14		89	%	70 - 130
		Bromomethane	2005/07/14		89	%	70 - 130
		Carbon Tetrachloride	2005/07/14		100	%	70 - 130
		Chloroethane	2005/07/14		105	%	70 - 130
		Chloroform	2005/07/14		105	%	70 - 130
		Chloromethane	2005/07/14		100	%	70 - 130
		cis-1,2-Dichloroethylene	2005/07/14		110	%	70 - 130
		cis-1,3-Dichloropropene	2005/07/14		89	%	70 - 130
		D4-1,2-Dichloroethane	2005/07/14		100	%	70 - 130
		D8-Toluene	2005/07/14		100	%	70 - 130
		Dibromochloromethane	2005/07/14		95	%	70 - 130
		Ethylbenzene	2005/07/14		95	%	70 - 130
		Ethylene Bromide	2005/07/14		105	%	70 - 130
		Methylene Chloride(Dichloromethane)	2005/07/14		105	%	70 - 130
		o-Xylene	2005/07/14		110	%	70 - 130
		p+m-Xylene	2005/07/14		105	%	70 - 130
		Styrene	2005/07/14		105	%	70 - 130
		Tetrachloroethylene	2005/07/14		105	%	70 - 130
		Toluene	2005/07/14		100	%	70 - 130
		trans-1,2-Dichloroethylene	2005/07/14		105	%	70 - 130
		trans-1,3-Dichloropropene	2005/07/14		79	%	70 - 130
		Trichloroethylene	2005/07/14		105	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2005/07/14		95	%	70 - 130
		Vinyl Chloride	2005/07/14		105	%	70 - 130
	Spiked Blank	1,2-Dichlorobenzene	2005/07/14		83	%	70 - 130
		1,3-Dichlorobenzene	2005/07/14		83	%	70 - 130
		1,4-Dichlorobenzene	2005/07/14		79	%	70 - 130
		Chlorobenzene	2005/07/14		98	%	70 - 130
		1,1,1-Trichloroethane	2005/07/14		96	%	70 - 130
		1,1,2,2-Tetrachloroethane	2005/07/14		87	%	70 - 130
		1,1,2-Trichloroethane	2005/07/14		99	%	70 - 130
		1,1-Dichloroethane	2005/07/14		99	%	70 - 130
		1,1-Dichloroethylene	2005/07/14		100	%	70 - 130
		1,2-Dichloroethane	2005/07/14		93	%	70 - 130
		1,2-Dichloropropane	2005/07/14		99	%	70 - 130
		4-Bromofluorobenzene	2005/07/14		100	%	70 - 130
		Benzene	2005/07/14		97	%	70 - 130
		Bromodichloromethane	2005/07/14		88	%	70 - 130
		Bromoform	2005/07/14		83	%	70 - 130
		Bromomethane	2005/07/14		93	%	70 - 130
		Carbon Tetrachloride	2005/07/14		97	%	70 - 130
		Chloroethane	2005/07/14		99	%	70 - 130

Pinchin Leblanc Environmental
Attention: CRAIG DICKSON
Client Project #: 01-5372
P.O. #: 01-5372
Project name: GREENWOOD

Quality Assurance Report (Continued)

Maxxam Job Number: DA565111

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
779514 RMC	Spiked Blank	Chloroform	2005/07/14		101	%	70 - 130
		Chloromethane	2005/07/14		100	%	70 - 130
		cis-1,2-Dichloroethylene	2005/07/14		107	%	70 - 130
		cis-1,3-Dichloropropene	2005/07/14		83	%	70 - 130
		D4-1,2-Dichloroethane	2005/07/14		100	%	70 - 130
		D8-Toluene	2005/07/14		100	%	70 - 130
		Dibromochloromethane	2005/07/14		88	%	70 - 130
		Ethylbenzene	2005/07/14		91	%	70 - 130
		Ethylene Bromide	2005/07/14		103	%	70 - 130
		Methylene Chloride(Dichloromethane)	2005/07/14		100	%	70 - 130
		o-Xylene	2005/07/14		108	%	70 - 130
		p+m-Xylene	2005/07/14		104	%	70 - 130
		Styrene	2005/07/14		103	%	70 - 130
		Tetrachloroethylene	2005/07/14		100	%	70 - 130
		Toluene	2005/07/14		94	%	70 - 130
		trans-1,2-Dichloroethylene	2005/07/14		104	%	70 - 130
		trans-1,3-Dichloropropene	2005/07/14		76	%	70 - 130
		Trichloroethylene	2005/07/14		105	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2005/07/14		99	%	70 - 130
		Vinyl Chloride	2005/07/14		105	%	70 - 130
	Method Blank	1,2-Dichlorobenzene	2005/07/14	ND, DL=0.5		ug/L	
		1,3-Dichlorobenzene	2005/07/14	ND, DL=1		ug/L	
		1,4-Dichlorobenzene	2005/07/14	ND, DL=1		ug/L	
		Chlorobenzene	2005/07/14	ND, DL=1		ug/L	
		1,1,1-Trichloroethane	2005/07/14	ND, DL=1		ug/L	
		1,1,2,2-Tetrachloroethane	2005/07/14	ND, DL=1		ug/L	
		1,1,2-Trichloroethane	2005/07/14	ND, DL=1		ug/L	
		1,1-Dichloroethane	2005/07/14	ND, DL=2		ug/L	
		1,1-Dichloroethylene	2005/07/14	ND, DL=2		ug/L	
		1,2-Dichloroethane	2005/07/14	ND, DL=1		ug/L	
		1,2-Dichloropropane	2005/07/14	ND, DL=1		ug/L	
		4-Bromofluorobenzene	2005/07/14		82	%	70 - 130
		Benzene	2005/07/14	ND, DL=1		ug/L	
		Bromodichloromethane	2005/07/14	ND, DL=1		ug/L	
		Bromoform	2005/07/14	ND, DL=1		ug/L	
		Bromomethane	2005/07/14	ND, DL=8		ug/L	
		Carbon Tetrachloride	2005/07/14	ND, DL=1		ug/L	
		Chloroethane	2005/07/14	ND, DL=8		ug/L	
		Chloroform	2005/07/14	ND, DL=1		ug/L	
		Chloromethane	2005/07/14	ND, DL=8		ug/L	
		cis-1,2-Dichloroethylene	2005/07/14	ND, DL=2		ug/L	
		cis-1,3-Dichloropropene	2005/07/14	ND, DL=2		ug/L	
		D4-1,2-Dichloroethane	2005/07/14		99	%	70 - 130
		D8-Toluene	2005/07/14		98	%	70 - 130
		Dibromochloromethane	2005/07/14	ND, DL=1		ug/L	
		Ethylbenzene	2005/07/14	ND, DL=1		ug/L	
		Ethylene Bromide	2005/07/14	ND, DL=1		ug/L	
		Methylene Chloride(Dichloromethane)	2005/07/14	ND, DL=3		ug/L	
		o-Xylene	2005/07/14	ND, DL=1		ug/L	
		p+m-Xylene	2005/07/14	ND, DL=2		ug/L	
		Styrene	2005/07/14	ND, DL=1		ug/L	
		Tetrachloroethylene	2005/07/14	ND, DL=1		ug/L	
		Toluene	2005/07/14	ND, DL=1		ug/L	
		trans-1,2-Dichloroethylene	2005/07/14	ND, DL=2		ug/L	
		trans-1,3-Dichloropropene	2005/07/14	ND, DL=1		ug/L	
		Trichloroethylene	2005/07/14	ND, DL=1		ug/L	

Pinchin Leblanc Environmental
Attention: CRAIG DICKSON
Client Project #: 01-5372
P.O. #: 01-5372
Project name: GREENWOOD

Quality Assurance Report (Continued)

Maxxam Job Number: DA565111

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
779514 RMC	Method Blank	Trichlorofluoromethane (FREON 11)	2005/07/14	ND, DL=8		ug/L	
		Vinyl Chloride	2005/07/14	ND, DL=1		ug/L	
	RPD	1,2-Dichlorobenzene	2005/07/14	NC		%	40
		1,3-Dichlorobenzene	2005/07/14	NC		%	40
		1,4-Dichlorobenzene	2005/07/14	NC		%	40
		Chlorobenzene	2005/07/14	NC		%	40
		1,1,1-Trichloroethane	2005/07/14	NC		%	40
		1,1,2,2-Tetrachloroethane	2005/07/14	NC		%	40
		1,1,2-Trichloroethane	2005/07/14	NC		%	40
		1,1-Dichloroethane	2005/07/14	NC		%	40
		1,1-Dichloroethylene	2005/07/14	NC		%	40
		1,2-Dichloroethane	2005/07/14	NC		%	40
		1,2-Dichloropropane	2005/07/14	NC		%	40
		Benzene	2005/07/14	NC		%	40
		Bromodichloromethane	2005/07/14	NC		%	40
		Bromoform	2005/07/14	NC		%	40
		Bromomethane	2005/07/14	NC		%	40
		Carbon Tetrachloride	2005/07/14	NC		%	40
		Chloroethane	2005/07/14	NC		%	40
		Chloroform	2005/07/14	NC		%	40
		Chloromethane	2005/07/14	NC		%	40
		cis-1,2-Dichloroethylene	2005/07/14	1.8		%	40
		cis-1,3-Dichloropropene	2005/07/14	NC		%	40
		Dibromochloromethane	2005/07/14	NC		%	40
		Ethylbenzene	2005/07/14	NC		%	40
		Ethylene Bromide	2005/07/14	NC		%	40
		Methylene Chloride(Dichloromethane)	2005/07/14	NC		%	40
		o-Xylene	2005/07/14	NC		%	40
		p+m-Xylene	2005/07/14	NC		%	40
		Styrene	2005/07/14	NC		%	40
		Tetrachloroethylene	2005/07/14	NC		%	40
		Toluene	2005/07/14	NC		%	40
		trans-1,2-Dichloroethylene	2005/07/14	NC		%	40
		trans-1,3-Dichloropropene	2005/07/14	NC		%	40
		Trichloroethylene	2005/07/14	NC		%	40
		Trichlorofluoromethane (FREON 11)	2005/07/14	NC		%	40
		Vinyl Chloride	2005/07/14	0.1		%	40

ND = Not detected
NC = Non-calculable
RPD = Relative Percent Difference
SPIKE = Fortified sample

This document is in electronic format. hard copy is available on request.

Pinchin Leblanc Environmental
40 John Savage Ave
Dartmouth, NS
B3B 2E6

Attention: CRAIG DICKSON

Report Date: 2005/07/26

Your P.O. #: 01-5372
Your Project #: 01-5372
Site: GREENWOOD
Your C.O.C. #: 321883

ANALYTICAL REPORT

MAXXAM JOB #: A567742
Received: 2005/07/19, 11:27

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Volatile Organic Compounds in Water[1]	1	2005/07/22	2005/07/22	9615_1_3	Based on EPA624

(1) This test was performed by Bedford

MAXXAM ANALYTICS INC.

KERI MACKAY
Project Manager

KMA/lad
encl.

Total cover pages: 1

Maxxam Job #: A567742
Report Date: 2005/07/26

Pinchin Leblanc Environmental
Client Project #: 01-5372
Project name: GREENWOOD
Your P.O. #: 01-5372
Sampler Initials:

ATLANTIC VOC IN WATER PKG. (WATER)

Maxxam ID		H24247		
Sampling Date		2005/07/18		
COC Number		321883		
	Units	**WW**	**DL**	**QC Batch**
CHLOROBENZENES				
1,2-Dichlorobenzene	ug/L	ND	0.5	785046
1,3-Dichlorobenzene	ug/L	ND	1	785046
1,4-Dichlorobenzene	ug/L	ND	1	785046
Chlorobenzene	ug/L	ND	1	785046
VOLATILES				
1,1,1-Trichloroethane	ug/L	ND	1	785046
1,1,2,2-Tetrachloroethane	ug/L	ND	1	785046
1,1,2-Trichloroethane	ug/L	ND	1	785046
1,1-Dichloroethane	ug/L	ND	2	785046
1,1-Dichloroethylene	ug/L	ND	2	785046
1,2-Dichloroethane	ug/L	ND	1	785046
1,2-Dichloropropane	ug/L	ND	1	785046
Benzene	ug/L	ND	1	785046
Bromodichloromethane	ug/L	ND	1	785046
Bromoform	ug/L	ND	1	785046
Bromomethane	ug/L	ND	8	785046
Carbon Tetrachloride	ug/L	ND	1	785046
Chloroethane	ug/L	ND	8	785046
Chloroform	ug/L	ND	1	785046
Chloromethane	ug/L	ND	8	785046
cis-1,2-Dichloroethylene	ug/L	ND	2	785046
cis-1,3-Dichloropropene	ug/L	ND	2	785046
Dibromochloromethane	ug/L	ND	1	785046
Ethylbenzene	ug/L	ND	1	785046
Ethylene Dibromide	ug/L	ND	1	785046
Methylene Chloride(Dichloromethane)	ug/L	ND	3	785046
o-Xylene	ug/L	ND	1	785046
p+m-Xylene	ug/L	ND	2	785046
Styrene	ug/L	ND	1	785046
Tetrachloroethylene	ug/L	3.0	1	785046
Toluene	ug/L	ND	1	785046
trans-1,2-Dichloroethylene	ug/L	ND	2	785046

ND = Not detected
QC Batch = Quality Control Batch
Please check for attached comments

Maxxam Job #: A567742
Report Date: 2005/07/26

Pinchin Leblanc Environmental
Client Project #: 01-5372
Project name: GREENWOOD
Your P.O. #: 01-5372
Sampler Initials:

ATLANTIC VOC IN WATER PKG. (WATER)

Maxxam ID		H24247		
Sampling Date		2005/07/18		
COC Number		321883		
	Units	**WW**	**DL**	**QC Batch**
trans-1,3-Dichloropropene	ug/L	ND	1	785046
Trichloroethylene	ug/L	ND	1	785046
Trichlorofluoromethane (FREON 11)	ug/L	ND	8	785046
Vinyl Chloride	ug/L	ND	1	785046
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	83		785046
D4-1,2-Dichloroethane	%	101		785046
D8-Toluene	%	98		785046

ND = Not detected
QC Batch = Quality Control Batch
Please check for attached comments

Maxxam Job #: A567742
Report Date: 2005/07/26

Pinchin Leblanc Environmental
Client Project #: 01-5372
Project name: GREENWOOD
Your P.O. #: 01-5372
Sampler Initials:

GENERAL COMMENTS

Results relate only to the items tested.

Pinchin Leblanc Environmental
Attention: CRAIG DICKSON
Client Project #: 01-5372
P.O. #: 01-5372
Project name: GREENWOOD

Quality Assurance Report

Maxxam Job Number: DA567742

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
785046 RMC	Spiked Blank	1,2-Dichlorobenzene	2005/07/22		87	%	70 - 130
		1,3-Dichlorobenzene	2005/07/22		85	%	70 - 130
		1,4-Dichlorobenzene	2005/07/22		85	%	70 - 130
		Chlorobenzene	2005/07/22		97	%	70 - 130
		1,1,1-Trichloroethane	2005/07/22		98	%	70 - 130
		1,1,2,2-Tetrachloroethane	2005/07/22		87	%	70 - 130
		1,1,2-Trichloroethane	2005/07/22		100	%	70 - 130
		1,1-Dichloroethane	2005/07/22		99	%	70 - 130
		1,1-Dichloroethylene	2005/07/22		102	%	70 - 130
		1,2-Dichloroethane	2005/07/22		95	%	70 - 130
		1,2-Dichloropropane	2005/07/22		100	%	70 - 130
		4-Bromofluorobenzene	2005/07/22		99	%	70 - 130
		Benzene	2005/07/22		96	%	70 - 130
		Bromodichloromethane	2005/07/22		89	%	70 - 130
		Bromoform	2005/07/22		87	%	70 - 130
		Bromomethane	2005/07/22		87	%	70 - 130
		Carbon Tetrachloride	2005/07/22		99	%	70 - 130
		Chloroethane	2005/07/22		102	%	70 - 130
		Chloroform	2005/07/22		102	%	70 - 130
		Chloromethane	2005/07/22		112	%	70 - 130
		cis-1,2-Dichloroethylene	2005/07/22		109	%	70 - 130
		cis-1,3-Dichloropropene	2005/07/22		89	%	70 - 130
		D4-1,2-Dichloroethane	2005/07/22		100	%	70 - 130
		D8-Toluene	2005/07/22		100	%	70 - 130
		Dibromochloromethane	2005/07/22		92	%	70 - 130
		Ethylbenzene	2005/07/22		90	%	70 - 130
		Ethylene Dibromide	2005/07/22		103	%	70 - 130
		Methylene Chloride(Dichloromethane)	2005/07/22		100	%	70 - 130
		o-Xylene	2005/07/22		103	%	70 - 130
		p+m-Xylene	2005/07/22		102	%	70 - 130
		Styrene	2005/07/22		99	%	70 - 130
		Tetrachloroethylene	2005/07/22		101	%	70 - 130
		Toluene	2005/07/22		94	%	70 - 130
		trans-1,2-Dichloroethylene	2005/07/22		102	%	70 - 130
		trans-1,3-Dichloropropene	2005/07/22		83	%	70 - 130
		Trichloroethylene	2005/07/22		105	%	70 - 130
		Trichlorofluoromethane (FREON 11)	2005/07/22		102	%	70 - 130
		Vinyl Chloride	2005/07/22		112	%	70 - 130
	Method Blank	1,2-Dichlorobenzene	2005/07/22	ND, DL=0.5		ug/L	
		1,3-Dichlorobenzene	2005/07/22	ND, DL=1		ug/L	
		1,4-Dichlorobenzene	2005/07/22	ND, DL=1		ug/L	
		Chlorobenzene	2005/07/22	ND, DL=1		ug/L	
		1,1,1-Trichloroethane	2005/07/22	ND, DL=1		ug/L	
		1,1,2,2-Tetrachloroethane	2005/07/22	ND, DL=1		ug/L	
		1,1,2-Trichloroethane	2005/07/22	ND, DL=1		ug/L	
		1,1-Dichloroethane	2005/07/22	ND, DL=2		ug/L	
		1,1-Dichloroethylene	2005/07/22	ND, DL=2		ug/L	
		1,2-Dichloroethane	2005/07/22	ND, DL=1		ug/L	
		1,2-Dichloropropane	2005/07/22	ND, DL=1		ug/L	
		4-Bromofluorobenzene	2005/07/22		91	%	70 - 130
		Benzene	2005/07/22	ND, DL=1		ug/L	
		Bromodichloromethane	2005/07/22	ND, DL=1		ug/L	
		Bromoform	2005/07/22	ND, DL=1		ug/L	
		Bromomethane	2005/07/22	ND, DL=8		ug/L	
		Carbon Tetrachloride	2005/07/22	ND, DL=1		ug/L	
		Chloroethane	2005/07/22	ND, DL=8		ug/L	

Pinchin Leblanc Environmental
Attention: CRAIG DICKSON
Client Project #: 01-5372
P.O. #: 01-5372
Project name: GREENWOOD

Quality Assurance Report (Continued)

Maxxam Job Number: DA567742

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
785046 RMC	Method Blank	Chloroform	2005/07/22	ND, DL=1		ug/L	
		Chloromethane	2005/07/22	ND, DL=8		ug/L	
		cis-1,2-Dichloroethylene	2005/07/22	ND, DL=2		ug/L	
		cis-1,3-Dichloropropene	2005/07/22	ND, DL=2		ug/L	
		D4-1,2-Dichloroethane	2005/07/22		101	%	70 - 130
		D8-Toluene	2005/07/22		98	%	70 - 130
		Dibromochloromethane	2005/07/22	ND, DL=1		ug/L	
		Ethylbenzene	2005/07/22	ND, DL=1		ug/L	
		Ethylene Dibromide	2005/07/22	ND, DL=1		ug/L	
		Methylene Chloride(Dichloromethane)	2005/07/22	ND, DL=3		ug/L	
		o-Xylene	2005/07/22	ND, DL=1		ug/L	
		p+m-Xylene	2005/07/22	ND, DL=2		ug/L	
		Styrene	2005/07/22	ND, DL=1		ug/L	
		Tetrachloroethylene	2005/07/22	ND, DL=1		ug/L	
		Toluene	2005/07/22	ND, DL=1		ug/L	
		trans-1,2-Dichloroethylene	2005/07/22	ND, DL=2		ug/L	
		trans-1,3-Dichloropropene	2005/07/22	ND, DL=1		ug/L	
		Trichloroethylene	2005/07/22	ND, DL=1		ug/L	
		Trichlorofluoromethane (FREON 11)	2005/07/22	ND, DL=8		ug/L	
		Vinyl Chloride	2005/07/22	ND, DL=1		ug/L	
	RPD	1,2-Dichlorobenzene		TBA		%	40
		1,3-Dichlorobenzene		TBA		%	40
		1,4-Dichlorobenzene		TBA		%	40
		Chlorobenzene		TBA		%	40
		1,1,1-Trichloroethane		TBA		%	40
		1,1,2,2-Tetrachloroethane		TBA		%	40
		1,1,2-Trichloroethane		TBA		%	40
		1,1-Dichloroethane		TBA		%	40
		1,1-Dichloroethylene		TBA		%	40
		1,2-Dichloroethane		TBA		%	40
		1,2-Dichloropropane		TBA		%	40
		Benzene		TBA		%	40
		Bromodichloromethane		TBA		%	40
		Bromoform		TBA		%	40
		Bromomethane		TBA		%	40
		Carbon Tetrachloride		TBA		%	40
		Chloroethane		TBA		%	40
		Chloroform		TBA		%	40
		Chloromethane		TBA		%	40
		cis-1,2-Dichloroethylene		TBA		%	40
		cis-1,3-Dichloropropene		TBA		%	40
		Dibromochloromethane		TBA		%	40
		Ethylbenzene		TBA		%	40
		Ethylene Dibromide		TBA		%	40
		Methylene Chloride(Dichloromethane)		TBA		%	40
		o-Xylene		TBA		%	40
		p+m-Xylene		TBA		%	40
		Styrene		TBA		%	40
		Tetrachloroethylene		TBA		%	40
		Toluene		TBA		%	40
		trans-1,2-Dichloroethylene		TBA		%	40
		trans-1,3-Dichloropropene		TBA		%	40
		Trichloroethylene		TBA		%	40
		Trichlorofluoromethane (FREON 11)		TBA		%	40
		Vinyl Chloride		TBA		%	40

ND = Not detected

Pinchin Leblanc Environmental
Attention: CRAIG DICKSON
Client Project #: 01-5372
P.O. #: 01-5372
Project name: GREENWOOD

Quality Assurance Report (Continued)

Maxxam Job Number: DA567742

TBA = Result to follow
RPD = Relative Percent Difference
SPIKE = Fortified sample

Bedford: 200 Bluewater Road Bedford NS B4B 1G9 Telephone(902)420-0203 FAX(902)420-8612

This document is in electronic format. hard copy is available on request

Maxxam Analytics Inc

Pinchin Leblanc Environmental
40 John Savage Ave
Dartmouth, NS
B3B 2E6

Attention: CRAIG DICKSON

Report Date: 2005/07/14

Your P.O. #: 01-5372
Your Project #: 01-5372
Site: GREENWOOD
Your C.O.C. #: 321857

ANALYTICAL REPORT

MAXXAM JOB #: A563642
Received: 2005/07/08, 17:12

Sample Matrix: Soil
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Moisture	5	N/A	2005/07/12		MOE Handbook 1983
Volatile Organic Compounds in Soil(1)	5	N/A	2005/07/12	9617_1_4	

(1) SCC/CAEAL

MAXXAM ANALYTICS INC.

KERI MACKAY
Project Manager

KMA/lad
encl.

Total cover pages: 1

Maxxam Analytics Inc

Maxxam Job #: A563642
Report Date: 2005/07/14

Pinchin Leblanc Environmental
Client Project #: 01-5372
Project name: GREENWOOD
Your P.O. #: 01-5372
Sampler Initials:

ATLANTIC VOC IN SOIL PKG. (SOIL)

Maxxam ID		H06355	H06356	H06357	H06358	H06359		
Sampling Date		2005/07/07	2005/07/06	2005/07/05	2005/07/06	2005/07/07		
COC Number		321857	321857	321857	321857	321857		
	Units	**BH1 S-3 1.2-1.8M (4-6')**	**BH2 S-3 1.2-1.8M (4-6')**	**BH3 S-3 1.5-2.1M(5-7')**	**BH4 S-5 2.4-3.0M (8-10')**	**BH1 S-1 0-0.6M (0-2')**	**DL**	**QC Batch**
CHLOROBENZENES								
1,2-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	30	776828
1,3-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	30	776828
1,4-Dichlorobenzene	ug/kg	ND	ND	ND	ND	ND	30	776828
Chlorobenzene	ug/kg	ND	ND	ND	ND	ND	30	776828
VOLATILES								
1,1,1-Trichloroethane	ug/kg	ND	ND	ND	ND	ND	30	776828
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND	ND	ND	ND	30	776828
1,1,2-Trichloroethane	ug/kg	ND	ND	ND	ND	ND	30	776828
1,1-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	30	776828
1,1-Dichloroethylene	ug/kg	ND	ND	ND	ND	ND	30	776828
1,2-Dibromoethane (EDB)	ug/kg	ND	ND	ND	ND	ND	30	776828
1,2-Dichloroethane	ug/kg	ND	ND	ND	ND	ND	30	776828
1,2-Dichloropropane	ug/kg	ND	ND	ND	ND	ND	30	776828
Benzene	ug/kg	ND	ND	ND	ND	ND	30	776828
Bromodichloromethane	ug/kg	ND	ND	ND	ND	ND	30	776828
Bromoform	ug/kg	ND	ND	ND	ND	ND	30	776828
Bromomethane	ug/kg	ND	ND	ND	ND	ND	200	776828
Carbon Tetrachloride	ug/kg	ND	ND	ND	ND	ND	30	776828
Chloroethane	ug/kg	ND	ND	ND	ND	ND	200	776828
Chloroform	ug/kg	ND	ND	ND	ND	ND	30	776828
Chloromethane	ug/kg	ND	ND	ND	ND	ND	30	776828
cis-1,2-Dichloroethylene	ug/kg	ND	ND	ND	ND	ND	30	776828
cis-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND	30	776828
Dibromochloromethane	ug/kg	ND	ND	ND	ND	ND	30	776828
Dichloromethane (Methylene Chloride	ug/kg	ND	ND	ND	ND	ND	30	776828
Ethylbenzene	ug/kg	ND	ND	ND	ND	ND	30	776828
o-Xylene	ug/kg	ND	ND	ND	ND	ND	30	776828
p+m-Xylene	ug/kg	ND	ND	ND	ND	ND	30	776828
Styrene	ug/kg	ND	ND	ND	ND	ND	30	776828
Tetrachloroethylene	ug/kg	ND	ND	ND	ND	160	30	776828
Toluene	ug/kg	ND	ND	ND	ND	ND	30	776828

ND = Not detected
QC Batch = Quality Control Batch
Please check for attached comments

Maxxam Analytics Inc

Maxxam Job #: A563642
Report Date: 2005/07/14

Pinchin Leblanc Environmental
Client Project #: 01-5372
Project name: GREENWOOD
Your P.O. #: 01-5372
Sampler Initials:

ATLANTIC VOC IN SOIL PKG. (SOIL)

Maxxam ID		H06355	H06356	H06357	H06358	H06359		
Sampling Date		2005/07/07	2005/07/06	2005/07/05	2005/07/06	2005/07/07		
COC Number		321857	321857	321857	321857	321857		
	Units	**BH1 S-3 1.2-1.8M (4-6')**	**BH2 S-3 1.2-1.8M (4-6')**	**BH3 S-3 1.5-2.1M(5-7')**	**BH4 S-5 2.4-3.0M (8-10')**	**BH1 S-1 0-0.6M (0-2')**	**DL**	**QC Batch**
trans-1,2-Dichloroethylene	ug/kg	ND	ND	ND	ND	ND	30	776828
trans-1,3-Dichloropropene	ug/kg	ND	ND	ND	ND	ND	30	776828
Trichloroethylene	ug/kg	ND	ND	ND	ND	ND	30	776828
Trichlorofluoromethane (FREON 11)	ug/kg	ND	ND	ND	ND	ND	30	776828
Vinyl Chloride	ug/kg	ND	ND	ND	ND	ND	30	776828
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	89	89	91	86	86		776828
D4-1,2-Dichloroethane	%	98	100	100	97	97		776828
D8-Toluene	%	98	97	101	96	96		776828

ND = Not detected
QC Batch = Quality Control Batch
Please check for attached comments

Maxxam Analytics Inc

Maxxam Job #: A563642
Report Date: 2005/07/14

Pinchin Leblanc Environmental
Client Project #: 01-5372
Project name: GREENWOOD
Your P.O. #: 01-5372
Sampler Initials:

ATLANTIC VOC IN SOIL PKG. (SOIL)

Maxxam ID		H06359		
Sampling Date		2005/07/07		
COC Number		321857		
	Units	BH1 S-1 0-0.5M (0-2') Dup	DL	QC Batch
CHLOROBENZENES				
1,2-Dichlorobenzene	ug/kg	ND	30	776828
1,3-Dichlorobenzene	ug/kg	ND	30	776828
1,4-Dichlorobenzene	ug/kg	ND	30	776828
Chlorobenzene	ug/kg	ND	30	776828
VOLATILES				
1,1,1-Trichloroethane	ug/kg	ND	30	776828
1,1,2,2-Tetrachloroethane	ug/kg	ND	30	776828
1,1,2-Trichloroethane	ug/kg	ND	30	776828
1,1-Dichloroethane	ug/kg	ND	30	776828
1,1-Dichloroethylene	ug/kg	ND	30	776828
1,2-Dibromoethane (EDB)	ug/kg	ND	30	776828
1,2-Dichloroethane	ug/kg	ND	30	776828
1,2-Dichloropropane	ug/kg	ND	30	776828
Benzene	ug/kg	ND	30	776828
Bromodichloromethane	ug/kg	ND	30	776828
Bromoform	ug/kg	ND	30	776828
Bromomethane	ug/kg	ND	200	776828
Carbon Tetrachloride	ug/kg	ND	30	776828
Chloroethane	ug/kg	ND	200	776828
Chloroform	ug/kg	ND	30	776828
Chloromethane	ug/kg	ND	30	776828
cis-1,2-Dichloroethylene	ug/kg	ND	30	776828
cis-1,3-Dichloropropene	ug/kg	ND	30	776828
Dibromochloromethane	ug/kg	ND	30	776828
Dichloromethane (Methylene Chloride	ug/kg	ND	30	776828
Ethylbenzene	ug/kg	ND	30	776828
o-Xylene	ug/kg	ND	30	776828
p+m-Xylene	ug/kg	ND	30	776828
Styrene	ug/kg	ND	30	776828
Tetrachloroethylene	ug/kg	120	30	776828
Toluene	ug/kg	ND	30	776828

ND = Not detected
QC Batch = Quality Control Batch
Please check for attached comments

Maxxam Analytics Inc

Maxxam Job #: A563642
Report Date: 2005/07/14

Pinchin Leblanc Environmental
Client Project #: 01-5372
Project name: GREENWOOD
Your P.O. #: 01-5372
Sampler Initials:

ATLANTIC VOC IN SOIL PKG. (SOIL)

Maxxam ID		H06359		
Sampling Date		2005/07/07		
COC Number		321857		
	Units	**BH1 S-1 0-0.6M (0-2') Dup**	**DL**	**QC Batch**
trans-1,2-Dichloroethylene	ug/kg	ND	30	776828
trans-1,3-Dichloropropene	ug/kg	ND	30	776828
Trichloroethylene	ug/kg	ND	30	776828
Trichlorofluoromethane (FREON 11)	ug/kg	ND	30	776828
Vinyl Chloride	ug/kg	ND	30	776828
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	86		776828
D4-1,2-Dichloroethane	%	97		776828
D8-Toluene	%	97		776828

ND = Not detected
QC Batch = Quality Control Batch
Please check for attached comments

Maxxam Analytics Inc

Maxxam Job #: A563642
Report Date: 2005/07/14

Pinchin Leblanc Environmental
Client Project #: 01-5372
Project name: GREENWOOD
Your P.O. #: 01-5372
Sampler Initials:

RESULTS OF ANALYSES OF SOIL

Maxxam ID		H06355	H06356	H06357	H06358	H06359	H06359		
Sampling Date		2005/07/07	2005/07/06	2005/07/05	2005/07/06	2005/07/07	2005/07/07		
COC Number		321857	321857	321857	321857	321857	321857		
	Units	BH1 S-3 1.2-1.8M (4-6')	BH2 S-3 1.2-1.8M (4-6')	BH3 S-3 1.5-2.1M(5-7')	BH4 S-5 2.4-3.0M (8-10')	BH1 S-1 0-0.6M (0-2')	BH1 S-1 0-0.6M (0-2') Dup	DL	QC Batch
Physical Properties									
Moisture	%	5.3	6.1	5.8	5.3	11	11	1	776718

QC Batch = Quality Control Batch
Please check for attached comments

Maxxam Analytics Inc

Maxxam Job #: A563642
Report Date: 2005/07/14

Pinchin Leblanc Environmental
Client Project #: 01-5372
Project name: GREENWOOD
Your P.O. #: 01-5372
Sampler Initials:

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Analytics Inc

Pinchin Leblanc Environmental
Attention: CRAIG DICKSON
Client Project #: 01-5372
P.O. #: 01-5372
Project name: GREENWOOD

Quality Assurance Report

Maxxam Job Number: DA563642

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
776718 NTY	RPD	Moisture	2005/07/12	2.1		%	N/A
776828 RMC	MATRIX SPIKE	1,2-Dichlorobenzene	2005/07/12		81	%	60 - 140
		1,3-Dichlorobenzene	2005/07/12		83	%	60 - 140
		1,4-Dichlorobenzene	2005/07/12		75	%	60 - 140
		Chlorobenzene	2005/07/12		97	%	60 - 140
		1,1,1-Trichloroethane	2005/07/12		89	%	60 - 140
		1,1,2,2-Tetrachloroethane	2005/07/12		75	%	60 - 140
		1,1,2-Trichloroethane	2005/07/12		95	%	60 - 140
		1,1-Dichloroethane	2005/07/12		97	%	60 - 140
		1,1-Dichloroethylene	2005/07/12		97	%	60 - 140
		1,2-Dibromoethane (EDB)	2005/07/12		98	%	60 - 140
		1,2-Dichloroethane	2005/07/12		91	%	60 - 140
		1,2-Dichloropropane	2005/07/12		97	%	60 - 140
		4-Bromofluorobenzene	2005/07/12		103	%	60 - 140
		Benzene	2005/07/12		94	%	60 - 140
		Bromodichloromethane	2005/07/12		73	%	60 - 140
		Bromoform	2005/07/12		159	%	60 - 140
		Bromomethane	2005/07/12		115	%	60 - 140
		Carbon Tetrachloride	2005/07/12		79	%	60 - 140
		Chloroethane	2005/07/12		109	%	60 - 140
		Chloroform	2005/07/12		99	%	60 - 140
		Chloromethane	2005/07/12		91	%	60 - 140
		cis-1,2-Dichloroethylene	2005/07/12		110	%	60 - 140
		cis-1,3-Dichloropropene	2005/07/12		77	%	60 - 140
		D4-1,2-Dichloroethane	2005/07/12		99	%	60 - 140
		D8-Toluene	2005/07/12		100	%	60 - 140
		Dibromochloromethane	2005/07/12		67	%	60 - 140
		Dichloromethane (Methylene Chloride	2005/07/12		99	%	60 - 140
		Ethylbenzene	2005/07/12		93	%	60 - 140
		o-Xylene	2005/07/12		104	%	60 - 140
		p+m-Xylene	2005/07/12		108	%	60 - 140
		Styrene	2005/07/12		96	%	60 - 140
		Tetrachloroethylene	2005/07/12		72	%	60 - 140
		Toluene	2005/07/12		93	%	60 - 140
		trans-1,2-Dichloroethylene	2005/07/12		95	%	60 - 140
		trans-1,3-Dichloropropene	2005/07/12		67	%	60 - 140
		Trichloroethylene	2005/07/12		101	%	60 - 140
		Trichlorofluoromethane (FREON 11)	2005/07/12		93	%	60 - 140
		Vinyl Chloride	2005/07/12		97	%	60 - 140
	Spiked Blank	1,2-Dichlorobenzene	2005/07/12		80	%	60 - 140
		1,3-Dichlorobenzene	2005/07/12		83	%	60 - 140
		1,4-Dichlorobenzene	2005/07/12		74	%	60 - 140
		Chlorobenzene	2005/07/12		95	%	60 - 140
		1,1,1-Trichloroethane	2005/07/12		90	%	60 - 140
		1,1,2,2-Tetrachloroethane	2005/07/12		72	%	60 - 140
		1,1,2-Trichloroethane	2005/07/12		94	%	60 - 140
		1,1-Dichloroethane	2005/07/12		97	%	60 - 140
		1,1-Dichloroethylene	2005/07/12		97	%	60 - 140
		1,2-Dibromoethane (EDB)	2005/07/12		100	%	60 - 140
		1,2-Dichloroethane	2005/07/12		93	%	60 - 140
		1,2-Dichloropropane	2005/07/12		119	%	60 - 140
		4-Bromofluorobenzene	2005/07/12		101	%	60 - 140
		Benzene	2005/07/12		94	%	60 - 140
		Bromodichloromethane	2005/07/12		75	%	60 - 140
		Bromoform	2005/07/12		79	%	60 - 140
		Bromomethane	2005/07/12		109	%	60 - 140

Maxxam Analytics Inc

Pinchin Leblanc Environmental
Attention: CRAIG DICKSON
Client Project #: 01-5372
P.O. #: 01-5372
Project name: GREENWOOD

Quality Assurance Report (Continued)

Maxxam Job Number: DA563642

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
776828 RMC	Spiked Blank	Carbon Tetrachloride	2005/07/12		82	%	60 - 140
		Chloroethane	2005/07/12		106	%	60 - 140
		Chloroform	2005/07/12		99	%	60 - 140
		Chloromethane	2005/07/12		94	%	60 - 140
		cis-1,2-Dichloroethylene	2005/07/12		108	%	60 - 140
		cis-1,3-Dichloropropene	2005/07/12		94	%	60 - 140
		D4-1,2-Dichloroethane	2005/07/12		98	%	60 - 140
		D8-Toluene	2005/07/12		100	%	60 - 140
		Dibromochloromethane	2005/07/12		70	%	60 - 140
		Dichloromethane (Methylene Chloride	2005/07/12		101	%	60 - 140
		Ethylbenzene	2005/07/12		91	%	60 - 140
		o-Xylene	2005/07/12		104	%	60 - 140
		p+m-Xylene	2005/07/12		109	%	60 - 140
		Styrene	2005/07/12		100	%	60 - 140
		Tetrachloroethylene	2005/07/12		99	%	60 - 140
		Toluene	2005/07/12		94	%	60 - 140
		trans-1,2-Dichloroethylene	2005/07/12		94	%	60 - 140
		trans-1,3-Dichloropropene	2005/07/12		70	%	60 - 140
		Trichloroethylene	2005/07/12		102	%	60 - 140
		Trichlorofluoromethane (FREON 11)	2005/07/12		95	%	60 - 140
		Vinyl Chloride	2005/07/12		100	%	60 - 140
	Method Blank	1,2-Dichlorobenzene	2005/07/12	ND, DL=30		ug/kg	
		1,3-Dichlorobenzene	2005/07/12	ND, DL=30		ug/kg	
		1,4-Dichlorobenzene	2005/07/12	ND, DL=30		ug/kg	
		Chlorobenzene	2005/07/12	ND, DL=30		ug/kg	
		1,1,1-Trichloroethane	2005/07/12	ND, DL=30		ug/kg	
		1,1,2,2-Tetrachloroethane	2005/07/12	ND, DL=30		ug/kg	
		1,1,2-Trichloroethane	2005/07/12	ND, DL=30		ug/kg	
		1,1-Dichloroethane	2005/07/12	ND, DL=30		ug/kg	
		1,1-Dichloroethylene	2005/07/12	ND, DL=30		ug/kg	
		1,2-Dibromoethane (EDB)	2005/07/12	ND, DL=30		ug/kg	
		1,2-Dichloroethane	2005/07/12	ND, DL=30		ug/kg	
		1,2-Dichloropropane	2005/07/12	ND, DL=30		ug/kg	
		4-Bromofluorobenzene	2005/07/12		94	%	60 - 140
		Benzene	2005/07/12	ND, DL=30		ug/kg	
		Bromodichloromethane	2005/07/12	ND, DL=30		ug/kg	
		Bromoform	2005/07/12	ND, DL=30		ug/kg	
		Bromomethane	2005/07/12	ND, DL=200		ug/kg	
		Carbon Tetrachloride	2005/07/12	ND, DL=30		ug/kg	
		Chloroethane	2005/07/12	ND, DL=200		ug/kg	
		Chloroform	2005/07/12	ND, DL=30		ug/kg	
		Chloromethane	2005/07/12	ND, DL=30		ug/kg	
		cis-1,2-Dichloroethylene	2005/07/12	ND, DL=30		ug/kg	
		cis-1,3-Dichloropropene	2005/07/12	ND, DL=30		ug/kg	
		D4-1,2-Dichloroethane	2005/07/12		101	%	60 - 140
		D8-Toluene	2005/07/12		99	%	60 - 140
		Dibromochloromethane	2005/07/12	ND, DL=30		ug/kg	
		Dichloromethane (Methylene Chloride	2005/07/12	ND, DL=30		ug/kg	
		Ethylbenzene	2005/07/12	ND, DL=30		ug/kg	
		o-Xylene	2005/07/12	ND, DL=30		ug/kg	
		p+m-Xylene	2005/07/12	ND, DL=30		ug/kg	
		Styrene	2005/07/12	ND, DL=30		ug/kg	
		Tetrachloroethylene	2005/07/12	ND, DL=30		ug/kg	
		Toluene	2005/07/12	ND, DL=30		ug/kg	
		trans-1,2-Dichloroethylene	2005/07/12	ND, DL=30		ug/kg	
		trans-1,3-Dichloropropene	2005/07/12	ND, DL=30		ug/kg	

Maxxam Analytics Inc

Pinchin Leblanc Environmental
Attention: CRAIG DICKSON
Client Project #: 01-5372
P.O. #: 01-5372
Project name: GREENWOOD

Quality Assurance Report (Continued)

Maxxam Job Number: DA563642

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
776828 RMC	Method Blank	Trichloroethylene	2005/07/12	ND, DL=30		ug/kg	
		Trichlorofluoromethane (FREON 11)	2005/07/12	ND, DL=30		ug/kg	
		Vinyl Chloride	2005/07/12	ND, DL=30		ug/kg	
	RPD	1,2-Dichlorobenzene	2005/07/12	NC		%	50
		1,3-Dichlorobenzene	2005/07/12	NC		%	50
		1,4-Dichlorobenzene	2005/07/12	NC		%	50
		Chlorobenzene	2005/07/12	NC		%	50
		1,1,1-Trichloroethane	2005/07/12	NC		%	50
		1,1,2,2-Tetrachloroethane	2005/07/12	NC		%	50
		1,1,2-Trichloroethane	2005/07/12	NC		%	50
		1,1-Dichloroethane	2005/07/12	NC		%	50
		1,1-Dichloroethylene	2005/07/12	NC		%	50
		1,2-Dibromoethane (EDB)	2005/07/12	NC		%	50
		1,2-Dichloroethane	2005/07/12	NC		%	50
		1,2-Dichloropropane	2005/07/12	NC		%	50
		Benzene	2005/07/12	NC		%	50
		Bromodichloromethane	2005/07/12	NC		%	50
		Bromoform	2005/07/12	NC		%	50
		Bromomethane	2005/07/12	NC		%	50
		Carbon Tetrachloride	2005/07/12	NC		%	50
		Chloroethane	2005/07/12	NC		%	50
		Chloroform	2005/07/12	NC		%	50
		Chloromethane	2005/07/12	NC		%	50
		cis-1,2-Dichloroethylene	2005/07/12	NC		%	50
		cis-1,3-Dichloropropene	2005/07/12	NC		%	50
		Dibromochloromethane	2005/07/12	NC		%	50
		Dichloromethane (Methylene Chloride	2005/07/12	NC		%	50
		Ethylbenzene	2005/07/12	NC		%	50
		o-Xylene	2005/07/12	NC		%	50
		p+m-Xylene	2005/07/12	NC		%	50
		Styrene	2005/07/12	NC		%	50
		Tetrachloroethylene	2005/07/12	NC		%	50
		Toluene	2005/07/12	NC		%	50
		trans-1,2-Dichloroethylene	2005/07/12	NC		%	50
		trans-1,3-Dichloropropene	2005/07/12	NC		%	50
		Trichloroethylene	2005/07/12	NC		%	50
		Trichlorofluoromethane (FREON 11)	2005/07/12	NC		%	50
		Vinyl Chloride	2005/07/12	NC		%	50

ND = Not detected
N/A = Not Applicable
NC = Non-calculable
RPD = Relative Percent Difference
SPIKE = Fortified sample

APPENDIX D
PHOTOGRAPHS

Photo 1: Neighboring properties and Central Avenue to southwest of property.

Photo 2: Neighboring property (Greco restaurant) to west of property.

Photo 3: Neighboring properties and Central Avenue to southeast of property.

Photo 4: Neighboring property to east (H&R Block).

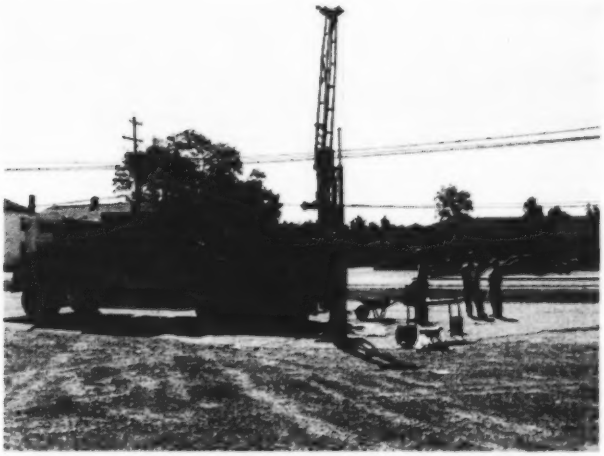

Photo 5: Drilling of MW 3 at south end of property.

Photo 6: Northwest view of property and location of monitor well MW 2.

Photo 7: Drilling of MW 1 at north end of property.

Photo 8: Drilled well casing exposed during excavation operations.

Photo 9: Drilling of MW 1 with hollow stem auger.

Photo 10: Extent of excavation area along eastern portion of property.

Photo 11: Water line discovered during excavation operations. The line extends to rear of property.